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UNITED STATES DISTRICT COURT

DISTRICT OF NEW JERSEY

In re VALEANT PHARMACEUTICALS)	Master No. 3:15-cv-07658-MAS-LHG
INTERNATIONAL, INC. SECURITIES)	
LITIGATION)	<u>CLASS ACTION</u>
_____)	
This Document Relates To:)	MEMORANDUM OF LAW IN
)	SUPPORT OF LEAD PLAINTIFF'S
ALL ACTIONS.)	MOTION FOR CLASS
)	CERTIFICATION
_____)	

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Lead Plaintiff Teachers Insurance and Annuity Association of America (“TIAA” or “Lead Plaintiff”) respectfully submits this memorandum of law in support of Lead Plaintiff’s Motion for Class Certification and requests that, pursuant to Federal Rule of Civil Procedure 23(a) and (b)(3), the Court certify this case as a class action, appoint TIAA and named plaintiffs City of Tucson together with and on behalf of the Tucson Supplemental Retirement System (“Tucson”) and IBEW Local Union 481 Defined Contribution Plan and Trust (“IBEW”) (collectively referred to herein as “plaintiffs”) as Class Representatives, and appoint Robbins Geller Rudman & Dowd LLP (“Robbins Geller”) as Class Counsel and Seeger Weiss LLP (“Seeger Weiss”) as Liaison Class Counsel pursuant to Rule 23(g).¹

I. INTRODUCTION

Plaintiffs seek certification on behalf of a Class consisting of:

All persons who purchased or otherwise acquired Valeant equity securities, as defined in 15 U.S.C. §78c(11) and 17 C.F.R. §240.3a11-1, and senior notes between January 4, 2013 and March 15, 2016, inclusive

¹ In accordance with this Court’s April 28, 2017 Memorandum Opinion and Order, defendants are Valeant Pharmaceuticals International, Inc. (“Valeant” or the “Company”), J. Michael Pearson, Howard Schiller, Robert L. Rosiello, Deborah A. Jorn, Ari S. Kellen, Ronald H. Farmer, Colleen Goggins, Robert A. Ingram, Anders Lönner, Theo Melas-Kyriazi, Robert N. Power, Norma Provencio, Katherine B. Stevenson, Jeffrey W. Ubben, Tanya Carro, PricewaterhouseCoopers LLP, Deutsche Bank Securities Inc., HSBC Securities (USA) Inc., Mitsubishi UFJ Securities (USA), Inc., DNB Markets Inc., Barclays Capital, Inc., Morgan Stanley & Co. LLC, RBC Capital Markets, SunTrust Robinson Humphrey, Inc., ValueAct Capital Management L.P., ValueAct Capital Master Fund, L.P., ValueAct Co-Invest Master Fund, L.P., VA Partners I, LLC and ValueAct Holdings, L.P. (collectively, “defendants”).

(the “Class Period”), including all persons who purchased or otherwise acquired Valeant common stock in and/or traceable to the Company’s March 2015 stock offering, and all persons who purchased or otherwise acquired any of the following Valeant senior notes during the Class Period: (1) 5.375% senior notes due 2020; (2) 5.875% senior notes due 2023; (3) 6.125% senior notes due 2025; (4) 5.5% senior notes due 2023; (5) 5.625% senior notes due 2021; (6) 6.75% senior notes due 2018; (7) 7.5% senior notes due 2021; (8) 6.375% senior notes due 2020; (9) 7.25% senior notes due 2022; (10) 6.75% senior notes due 2021; or (11) 7.0% senior notes due 2020.

Excluded from the Class are defendants, present or former executive officers of defendants and members of their immediate families, present or former directors of defendants and members of their immediate families, any entity in which a defendant has a controlling interest, and the legal representatives, heirs, successors or assigns of any such excluded party.

The Third Circuit recognizes that “[c]lass actions are a particularly appropriate and desirable means to resolve claims based on the securities laws, since the effectiveness of the securities laws may depend in large measure on the application of the class action device.” *Yang v. Odom*, 392 F.3d 97, 109 (3d Cir. 2004).² Moreover, “private civil actions filed pursuant to the Federal securities laws are important; they ‘provide “a most effective weapon in the enforcement” of the securities laws and are “a necessary supplement to [Securities and Exchange] Commission action.”’” *In re Lucent Techs. Sec. Litig.*, 194 F.R.D. 137, 144 (D.N.J. 2000). This case is no exception to that widely held premise.

² Citations and footnotes are omitted and emphasis is added throughout unless otherwise noted.

While this case is unique in the size and scope of damages suffered by the proposed Class, it is similar to most securities fraud suits in being perfectly suited to class certification. The requirements of Rule 23(a) – numerosity, commonality, typicality and adequacy – are easily met: the proposed Class consists of thousands of injured investors dispersed throughout the country who were similarly injured by defendants’ false and misleading statements throughout the Class Period. And the proposed Class Representatives and proposed Class Counsel are adequate. As this Court has already recognized, TIAA and Tucson are large financial institutions whose Class Period purchases of Valeant equity securities and senior notes on the open market, as well as purchases of Valeant common stock directly in or traceable to the Company’s March 2015 stock offering, resulted in substantial losses. Both TIAA and Tucson have actively and zealously represented the interests of the Class to date, including defeating multiple motions to dismiss brought by defendants. TIAA and Tucson’s selected counsel, Robbins Geller, is one of the most successful and experienced securities class action law firms, committed to and capable of prosecuting and trying this action vigorously on behalf of the Class.

In addition, common issues of fact and law are subject to common proof and plainly predominate over any individual issues. Because the respective markets for Valeant securities were efficient during the Class Period, all Class members are entitled to the fraud-on-the-market presumption of reliance under *Basic Inc. v.*

Levinson, 485 U.S. 224 (1988), reaffirmed in *Halliburton Co. v. Erica P. John Fund, Inc.*, ___U.S.___, 134 S. Ct. 2398, 2414 (2014) (“*Halliburton II*”). Further, the accompanying expert report by Professor Steven P. Feinstein (“Feinstein Rpt.”) regarding the efficiency of the market for Valeant common stock and options and the report by Cynthia L. Jones, CFA (“Jones Rpt.”) regarding the efficiency of the market for Valeant senior notes establish that common issues predominate with respect to the element of reliance. The evidence presented demonstrates that the market for Valeant securities was efficient during the Class Period.³

II. THE PROPOSED CLASS REPRESENTATIVES

The proposed Class Representatives, TIAA and Tucson, have already expended substantial time and effort in informing themselves about this case, working with counsel to vigorously prosecute this action on behalf of the Class they represent and participating in discovery. TIAA and Tucson have represented the Class by overseeing the litigation and communicating with Lead Counsel. TIAA and Tucson have also responded to defendants’ discovery requests, and have worked, and will continue to work, aggressively to obtain critical evidence supporting the Class’s claims.

The proposed Class Representatives are:

³ Because this Court is familiar with the underlying facts of this case, plaintiffs do not repeat them here. See *In re Valeant Pharm. Int’l, Inc. Sec. Litig.*, No. 15-7658 (MAS) (LHG), 2017 WL 1658822, at *2-*9 (D.N.J. Apr. 28, 2017).

Lead Plaintiff TIAA.⁴ TIAA is a large institutional investor headquartered in New York City, New York. ¶31⁵; *see also* Declaration of Christopher A. Seeger in Support of Lead Plaintiff’s Motion for Class Certification (“Seeger Decl.”), Ex. 1, ¶B, filed concurrently herewith. TIAA was established in 1918 as a joint stock life insurance company and has since grown to become one of the largest retirement systems in the world based on assets under management. ¶31. TIAA services the nation’s education and research communities. *Id.* As of October 31, 2014, it served over five million individuals and managed over \$500 billion in assets. During the Class Period, TIAA purchased Valeant debt and equity securities at artificially inflated prices. *Id.*; *see also* ECF No. 80-2.

Tucson. The Tucson Supplemental Retirement System, also a large institutional investor, is a defined benefit pension plan, qualified under Internal

⁴ TIAA consists of: Active Extension Fund III, LLC; Active Extension Analyst Market Neutral, LLC Fund/Active Extension Fund V; General Act Pension (“TIAA”)/Teachers Insurance and Annuity Association of America; CREF Growth Account; CREF Stock Account; CREF Global Equities Account; CREF Social Choice Account; CREF Bond Market Account; TIAA-CREF Growth & Income Fund; TIAA-CREF Large-Cap Growth Fund; TIAA-CREF Enhanced Large-Cap Value Index Fund; TIAA-CREF Life Growth Equity Fund; TIAA-CREF Life Growth & Income Fund; TIAA-CREF Life Bond Fund; TIAA-CREF Bond Fund; TIAA-CREF Bond Plus Fund; TIAA-CREF High-Yield Fund; TIAA-CREF Social Choice Bond Fund; TIAA-CREF Short-Term Bond Fund; and TIAA Global Public Investments, LLC.

⁵ Unless otherwise indicated, paragraph references (“¶” or “¶¶”) are to the Consolidated Complaint for Violations of the Federal Securities Laws (“Complaint”), filed June 24, 2016 (ECF No. 80).

Revenue Code §401(a) and established by the City of Tucson charter in 1953 to provide eligible city employees with retirement benefits. ¶32; *see also* Seeger Decl., Ex. 2, ¶B. The Plan is headquartered in Tucson, Arizona. Tucson also purchased Valeant securities at artificially inflated prices, and it purchased stock in and/or traceable to Valeant’s 2015 offering. *Id.*; *see also* ECF No. 80-3.

IBEW. IBEW is a large institutional investor. IBEW also purchased Valeant common stock at artificially inflated prices during the Class Period, including on June 11, 2015, and was damaged thereby. *See* FAC, ¶33; *see also* Seeger Decl., Ex. 3, ¶B.⁶

III. THE PROPOSED CLASS SATISFIES THE STANDARDS FOR CLASS CERTIFICATION UNDER RULE 23

To be certified, a putative class must demonstrate that it satisfies all four of the requirements of Rule 23(a) and one of the categories of Rule 23(b) of the Federal Rules of Civil Procedure. *In re Constar Int’l Inc. Sec. Litig.*, 585 F.3d 774, 780 (3d Cir. 2009). Following Supreme Court precedent, the Third Circuit makes clear that “[a]lthough the court must undertake a rigorous analysis at the certification stage and consider some merits-related issues, the class certification stage is not the place for a

⁶ On September 20, 2018, Lead Plaintiff filed the First Amended Consolidated Complaint for Violations of the Federal Securities Laws (“FAC”), which added claims pursuant to §§20A and 20(a) of the Securities Exchange Act of 1934 (“Exchange Act”) (Counts III and IV) against the Insider Trading Defendants, consisting of defendant Ubben and newly named defendants ValueAct Capital Management L.P., ValueAct Capital Master Fund, L.P., ValueAct Co-Invest Master Fund, L.P., VA Partners I, LLC and ValueAct Holdings, L.P. ECF No. 352. IBEW is an additional named plaintiff in the September 20, 2018 FAC.

decision on the merits.” *Williams v. Jani-King of Phila. Inc.*, 837 F.3d 314, 322 (3d Cir. 2016) (citing *Amgen Inc. v. Conn. Ret. Plans & Tr. Funds*, 568 U.S. 455, 466 (2013)). Because all of the requirements of Rule 23 have been met here, the Court should certify the proposed Class.

A. The Proposed Class Satisfies the Standards for Class Certification Under Rule 23(a)

1. The Class Is so Numerous that Joinder Is Impracticable

The numerosity requirement mandates that the proposed Class be “so numerous that joinder of all members is impracticable.” Fed. R. Civ. P. 23(a)(1). Joinder ““need not be impossible to satisfy Rule 23”” but can simply be difficult or inconvenient. *Korow v. Aaron’s Inc.*, No. 10-6317 (MAS)(LHG), 2013 WL 5811496, at *7 (D.N.J. July 31, 2013) (Shipp, J.). And while there is no ““minimum number,”” “the Rule 23(a) numerosity requirement is generally met” where a “class is likely to exceed forty members.” *Id.* (citing *Marcus v. BMW of N. Am., LLC*, 687 F.3d 583, 595 (3d Cir. 2012)). Courts in this Circuit have also found that the numerosity requirement “is readily” met in securities cases involving an issuer whose stock trades publicly on the New York Stock Exchange (“NYSE”). *City of Sterling Heights Gen. Emps.’ Ret. Sys. v. Prudential Fin., Inc.*, No. 12-5275, 2015 WL 5097883, at *8 (D.N.J. Aug. 31, 2015); *see also In re Schering-Plough Corp./ENHANCE Sec. Litig.*, No. 8-397 (DMC)(JAD), 2012 WL 4482032, at *3 (D.N.J. Sept. 25, 2012).

There are far more than 40 members in the proposed Class here. Throughout the Class Period, Valeant averaged: (1) 333.1 million shares of common stock outstanding; (2) a market capitalization of \$44.2 billion; and (3) a daily trading volume of 3.8 million shares on the NYSE. Feinstein Rpt., ¶¶49, 80, 83; *see also McIntire v. China MediaExpress Holdings, Inc.*, 38 F. Supp. 3d 415, 423 (S.D.N.Y. 2014); *Wilkof v. Caraco Pharm. Labs., Ltd.*, 280 F.R.D. 332, 338 (E.D. Mich. 2012).

There were also at least 1,337 major institutions that reported ownership of Valeant common stock during the Class Period. Feinstein Rpt., ¶58; *see also Smilovits v. First Solar, Inc.*, 295 F.R.D. 423, 428 (D. Ariz. 2013). Additionally, over \$17 billion (par value) of Valeant senior notes were issued and/or outstanding during the Class Period. Jones Rpt., ¶23; *see also In re NII Holdings, Inc. Sec. Litig.*, 311 F.R.D. 401, 406 (E.D. Va. 2015). Thus, the numerosity requirement is satisfied.

2. Common Questions of Law and Fact Exist

Rule 23(a)(2) requires the existence of “questions of law or fact common to the class.” Fed. R. Civ. P. 23(a)(2); *In re NFL Players Concussion Injury Litig.*, 821 F.3d 410, 426-27 (3d Cir. 2016), *cert. denied*, ___ U.S. ___, 137 S. Ct. 591 (2016). As the Third Circuit recently emphasized, “[m]eeting this requirement is easy enough: ‘[W]e have acknowledged commonality to be present even when not all members of the plaintiff class suffered an actual injury, when class members did not have identical claims, and, most dramatically, when some members’ claims were arguably not even

viable.” *Id.* at 427 (quoting *In re Cmty. Bank of N. Va. Mortg. Lending Practices Litig.*, *PNC Bank NA*, 795 F.3d 380, 397 (3d Cir. 2015), *cert. denied*, __ U.S. __, 136 S. Ct. 1167 (2016)). To satisfy Rule 23(a)(2), a plaintiff need only demonstrate that the ““common contention . . . must be of such a nature that it is capable of classwide resolution – which means that determination of its truth or falsity will resolve an issue that is central to the validity of each one of the claims in one stroke.”” *Alfaro v. First Advantage LNS Screening Sols., Inc.*, No. 15-5813 (MAS) (TJB), 2017 WL 3567974, at *2 (D.N.J. Aug. 16, 2017) (Shipp, J.) (quoting *Wal-Mart Stores, Inc. v. Dukes*, 564 U.S. 338, 350 (2011)).

Where, as here, plaintiffs allege injury from similar material misrepresentations and omissions, commonality is satisfied. *See Schering-Plough*, 2012 WL 4482032, at *4; *W. Palm Beach Police Pension Fund v. DFC Glob. Corp.*, No. 13-6731, 2016 WL 4138613, at *8 (E.D. Pa. Aug. 4, 2016).

Here, “[s]ince a single question of fact suffices to satisfy commonality, it is easily met.” *Li v. Aeterna Zentaris, Inc.*, 324 F.R.D. 331, 339 (D.N.J. 2018). Specifically, plaintiffs allege that defendants, *inter alia*, engaged in deceptive “price gouging” and other deceptive reimbursement and sales practices facilitated by the creation of a ““secret network of specialty pharmacies”” and concealed these practices “through materially false and misleading statements and omissions,” including the issuance of materially misstated financials publicly filed during the Class Period with

the U.S. Securities and Exchange Commission (“SEC”). *See Valeant*, 2017 WL 1658822, at *2-*8. Virtually all of the questions of law or fact are common to Class members, for example:

- Whether defendants’ statements and omissions violated the federal securities laws;
- Whether the Exchange Act Defendants (defined in ¶53) acted with the requisite intent when making material misrepresentations or omissions;
- Whether Valeant’s interim and year-end financial statements for 2014 and 2015 were materially false and/or misleading; and
- Whether investors suffered damages when the artificial inflation in the price of Valeant securities, created or maintained by defendants’ false statements and/or omissions, was eliminated.

Evidentiary proof of these claims will necessarily be common to all members of the Class. Under similar circumstances, courts have routinely found the commonality requirement satisfied. *See, e.g., Dartell v. Tibet Pharm., Inc.*, No. 14-3620, 2016 WL 718150, at *3 (D.N.J. Feb. 22, 2016); *DFC Glob.*, 2016 WL 4138613, at *8. Indeed, there is no doubt that absent Class members would have to prove virtually identical facts and address the same legal issues if they pursued their claims individually. Accordingly, the proposed Class satisfies Rule 23(a)(2)’s commonality requirement.

3. The Proposed Class Representatives’ Claims Are Typical of Those of the Class

Rule 23(a)(3) requires a showing that “the claims or defenses of the representative parties are typical of the claims or defenses of the class.” Fed. R. Civ. P. 23(a)(3). Typicality ““ensures the interests of the class and the class representatives

are aligned “so that the latter will work to benefit the entire class through the pursuit of their own goals.”” *NFL Players*, 821 F.3d at 427-28. The Third Circuit has “set a ‘low threshold’ for typicality” so that “[e]ven relatively pronounced factual differences will generally not preclude a finding of typicality where there is a strong similarity of legal theories” or where the claim arises from the same practice or course of conduct.” *Id.* at 428; *Alfaro*, 2017 WL 3567974, at *3 (same).

Finding Rule 23(a)(3)’s typicality requirement satisfied, courts in this Circuit and throughout the country have certified securities fraud class actions where purchasers of different types of securities issued by the same company were included in the class definition. *See Schering-Plough*, 2012 WL 4482032, at *12 (common stock, preferred stock and options); *In re DVI Inc. Sec. Litig.*, 249 F.R.D. 196, 220 (E.D. Pa. 2008) (“*DVI I*”) (common stock and bonds), *aff’d*, 639 F.3d 623 (3d Cir. 2011).⁷ Courts in the Third Circuit have also repeatedly certified securities class actions alleging claims under both the Exchange Act and the Securities Act of 1933 (“Securities Act”). *See Schering-Plough*, 2012 WL 4482032, at *2; *Smith v. Suprema Specialties, Inc.*, No. 02-168 (WHW), 2007 WL 1217980, at *2-*3 (D.N.J. Apr. 23,

⁷ *See also NII Holdings*, 311 F.R.D. at 414 (common stock and bonds); *In re Winstar Commc’ns Sec. Litig.*, 290 F.R.D. 437, 451-52 (S.D.N.Y. 2013) (same); *Bennett v. Sprint Nextel Corp.*, 298 F.R.D. 498, 502-03 (D. Kan. 2014) (same); *Plumbers & Pipefitters Nat’l Pension Fund v. Burns*, 967 F. Supp. 2d 1143, 1163-64 (N.D. Ohio 2013) (same); *In re Juniper Networks Sec. Litig.*, 264 F.R.D. 584, 594-95 (N.D. Cal. 2009) (same); *In re Countrywide Fin. Corp. Sec. Litig.*, 273 F.R.D. 586, 624-25 (C.D. Cal. 2009) (same).

2007); *DFC Glob.*, 2016 WL 4138613, at *15; *In re Wilmington Tr. Sec. Litig.*, 310 F.R.D. 243, 244 (D. Del. 2015); *In re DaimlerChrysler AG Sec. Litig.*, 216 F.R.D. 291, 296 (D. Del. 2003).

Plaintiffs assert claims typical of the absent Class members. The Complaint alleges that defendants made material misrepresentations and omitted material facts necessary to make their public statements not false or misleading. ¶¶133-230, 314-385, 678-711. As a result of the disclosure of defendants’ misconduct, the prices of Valeant securities plummeted. ¶¶473-528. Thus, the proposed Class Representatives – each of whom purchased or otherwise acquired both Valeant equity and debt securities during the Class Period – and all other Class members were damaged by the same alleged course of conduct. *Li*, 324 F.R.D. at 340. In fact, the proposed Class Representatives’ claims are not merely similar to those of the other Class members, they are virtually identical and will be proven by common evidence. Accordingly, the typicality requirement of Rule 23(a)(3) is satisfied.

4. The Proposed Class Representatives Will Fairly and Adequately Protect the Interests of the Class

The adequacy requirement of Rule 23(a)(4) demands that “the representative parties will fairly and adequately protect the interests of the class.” Fed. R. Civ. P. 23(a)(4). As the Third Circuit holds, “[t]he adequacy requirement primarily examines two matters: the interests and incentives of the class representatives, and the experience and performance of class counsel.” *Cnty. Bank*, 795 F.3d at 392; *see also*

NFL Players, 821 F.3d at 431. Moreover, “[t]he burden to prove that the representation is not adequate rests with the party challenging the class’ representation.” *Alfaro*, 2017 WL 3567974, at *3.

As demonstrated above, the typicality of the proposed Class Representatives’ claims and the commonality of interest presented by the common questions of law and fact ensure the proposed Class Representatives’ adequate representation of the proposed Class. *See* §III.A.2.-3., *supra*. TIAA, Tucson and IBEW purchased Valeant equity and debt securities in the open market, and Tucson also purchased common stock in and/or traceable to Valeant’s March 2015 offering of common stock. Each of the proposed Class Representatives is alleged to have been damaged by the acquisition of Valeant securities at prices that were artificially inflated. *See* ¶31; *see also* ECF No. 80-2 (TIAA Certification); ECF No. 80-3 (Tucson Certification); ECF No. 352 at pages 305-07 of 307 (IBEW Certification). Accordingly, TIAA, Tucson and IBEW’s interests are aligned with those of the absent Class members who also purchased or acquired Valeant securities during the Class Period and who now seek redress for defendants’ violations of the federal securities laws.

TIAA and Tucson have already successfully represented the interests of the Class and demonstrated their adequacy, assertiveness, and commitment to zealously prosecute this action. Since the Court appointed TIAA Lead Plaintiff on May 31, 2016, it has continuously overseen the litigation and worked with counsel to protect

the Class members’ interests. *See* Seeger Decl., Ex. 1, ¶C. Since being added as a plaintiff, Tucson has done the same. Seeger Decl., Ex. 2, ¶C. For example, both TIAA and Tucson have overseen: (1) the filing of an extensively detailed Complaint with a comprehensive set of claims; (2) the defending of those claims through voluminous motion to dismiss briefing; and (3) Lead Counsel’s vigorous pursuit of critical discovery from defendants and important third parties. Seeger Decl., Ex. 1, ¶C, Ex. 2, ¶C. Additionally, TIAA and Tucson searched for and produced thousands of pages of documents in response to defendants’ discovery requests. *See* Seeger Decl., Ex. 1, ¶C, Ex. 2, ¶C. Thus, the proposed Class Representatives will more than adequately protect the interests of the Class, as they have to date.

TIAA, Tucson and IBEW have also engaged Robbins Geller, a “proposed class counsel [that] is highly qualified to represent the class.” *Sterling Heights*, 2015 WL 5097883, at *9; *see also Grodko v. Cent. European Distrib. Corp.*, No. 12-5530 (JBS-KMW), 2012 WL 6595931, at *10 (D.N.J. Dec. 17, 2012) (“Robbins Geller has extensive experience with complex securities litigation and a successful track record.”). Robbins Geller possesses extensive experience litigating securities class actions both before courts in this Circuit and throughout the country, and has successfully prosecuted hundreds of securities class actions on behalf of injured investors. *See In re Enron Corp. Sec., Derivative & ERISA Litig.*, 586 F. Supp. 2d 732, 790 (S.D. Tex. 2008) (noting that the court considered Robbins Geller “‘a lion’ at

the securities bar on the national level”). The firm has achieved numerous appellate victories for investors, including several notable securities cases decided by the Third Circuit. *See, e.g., Constar*, 585 F.3d at 774; *Alaska Elec. Pension Fund v. Pharmacia Corp.*, 554 F.3d 342 (3d Cir. 2009); *Institutional Inv’rs Grp. v. Avaya, Inc.*, 564 F.3d 242 (3d Cir. 2009); *In re Merck & Co. Sec., Derivative & ERISA Litig.*, 493 F.3d 393 (3d Cir. 2007); *see also* Seeger Decl., Ex. 4 (firm resume).

Liaison Counsel Seeger Weiss also has been recognized for its extensive experience prosecuting complex class actions in this Circuit. *See In re NFL Players’ Concussion Injury Litig.*, 307 F.R.D. 351, 373 (E.D. Pa. 2015), *aff’d*, 821 F.3d 410 (3d Cir. 2016); *see also In re FieldTurf Artificial Turf Mktg. & Sales Practices Litig.*, No. 3:17-md-02779-MAS-TJB (D.N.J. Aug. 22, 2017) (ECF No. 61); *Lehigh Cty. Emps.’ Ret. Sys. v. Novo Nordisk A/S*, No. 3:17-cv-00209-BRM-LHG (D.N.J. June 1, 2017) (ECF No. 42); *In re Liquid Aluminum Sulfate Antitrust Litig.*, No. 2:16-md-02687-JLL-JAD (D.N.J. Apr. 8, 2016) (ECF No. 139); *Genesee Cty. Emps.’ Ret. Sys. v. Merck & Co., Inc.*, No. 2:08-cv-2177-ES-JAD (D.N.J. July 3, 2008) (ECF No. 18).

Here, Robbins Geller and Seeger Weiss extensively investigated defendants’ conduct, successfully opposed all five of defendants’ motions to dismiss, pressed for discovery from defendants and over 100 relevant third parties, and litigated vigorously against determined and experienced defense counsel. In short, Lead and Liaison Counsel are qualified, experienced, and able to prosecute this action.

5. The Court Should Appoint Lead Plaintiffs' Choice of Counsel as Class Counsel Under Rule 23(g)

In addition to satisfying the adequacy prong of Rule 23(a)(4), consideration of Rule 23(g) supports appointing Robbins Geller as Class Counsel and Seeger Weiss as Liaison Class Counsel. Under Rule 23(g)(4), the Court shall appoint counsel who will fairly and adequately represent the Class. Because “the [Private Securities Litigation Reform Act (‘PSLRA’)] provides that the lead plaintiff ‘shall, subject to the approval of the court, select and retain counsel to represent the class,’”⁸ there is “a strong presumption in favor of approving a properly-selected lead plaintiff’s decisions as to counsel selection and counsel retention.” *In re Cendant Corp. Litig.*, 264 F.3d 201, 218, 276 (3d Cir. 2001). Accordingly, and for the reasons stated above regarding counsel’s experience and resources, TIAA’s, Tucson’s and IBEW’s selection of Robbins Geller and Seeger Weiss as Class Counsel and Liaison Counsel, respectively, should be approved.

B. The Proposed Class Satisfies the Standard for Class Certification Under Rule 23(b)(3)

Having met the Rule 23(a) prerequisites, the present action also satisfies Rule 23(b)(3)’s requirements that common questions of law or fact predominate over individual questions and that a class action is the superior method to adjudicate this dispute. *See Amgen*, 568 U.S. at 460.

⁸ 15 U.S.C. §78u-4(a)(3)(B)(v).

1. The Class’s Claims Are Based on Common Factual and Legal Issues

Under Rule 23(b)(3), predominance exists where the proposed class is “sufficiently cohesive to warrant adjudication by representation.” *Id.* at 469. Moreover, “[t]he presence of individual questions does not *per se* rule out a finding of predominance,” and as long as “issues common to the class overwhelm individual issues, predominance should be satisfied.” *Neale v. Volvo Cars of N. Am., LLC*, 794 F.3d 353, 371 (3d Cir. 2015). Indeed, the Supreme Court said as much when it recently held:

When “one or more of the central issues in the action are common to the class and can be said to predominate, the action may be considered proper under Rule 23(b)(3) even though other important matters will have to be tried separately, such as damages or some affirmative defenses peculiar to some individual class members.”

Tyson Foods, Inc. v. Bouaphakeo, __ U.S. __, 136 S. Ct. 1036, 1045 (2016).

The Class’s claims depend on the same factual circumstances – *i.e.*, a single wrongful course of conduct that will need to be proven for each claim to succeed. ¶¶132-230. Plaintiffs allege that this course of conduct artificially inflated (or artificially maintained) the prices of Valeant equity and debt securities. ¶¶473-474. And when the truth regarding Valeant’s financial condition, deceptive business practices, and false accounting was revealed through a series of disclosures between September 28, 2015 and June 7, 2016, the price of Valeant securities fell and Class members were damaged. ¶¶231-301, 475-528.

The Class's claims also depend on proof of common legal issues. For instance, to establish liability for its Securities Act claims, the Class must prove that defendants made materially false or misleading statements of fact in the registration statements. 15 U.S.C. §§77k, 77l(a)(2). The Securities Act claims focus on the contents of the March 2015 offering registration statement and are just as well-suited for class treatment. *See Constar*, 585 F.3d at 783; *Dartell*, 2016 WL 718150, at *4.

Likewise, the Class's Exchange Act claims also depend on proof of the same falsity as the Securities Act claims, as well as other common legal issues. The Supreme Court holds that questions of whether a defendant knowingly and/or recklessly made public material misstatements and/or omissions (*i.e.*, the scienter, falsity and materiality elements of a §10(b) claim) and whether the revelation(s) of the alleged fraud proximately caused that company's stock price to decline (*i.e.*, the loss causation element) are each common questions of law and fact that predominate over individualized ones. *See Amgen*, 568 U.S. at 467-70, 475; *Erica P. John Fund, Inc. v. Halliburton Co.*, 563 U.S. 804, 813 (2011). With respect to the element of reliance, the predominance requirement is typically met in a securities fraud class action because the plaintiffs are entitled to rely on the fraud-on-the-market presumption of reliance. *See Basic*, 485 U.S. at 241; *Halliburton II*, 134 S. Ct. at 2405, 2408; *Amgen*, 568 U.S. at 461. The fraud-on-the-market theory "holds that 'the market price of shares traded on well-developed markets reflects all publicly available information,

and, hence, any material misrepresentations,’” and that whenever an “investor buys or sells stock at the market price, his ‘reliance on any public material misrepresentations . . . may be presumed for purposes of a Rule 10b-5 action.’” *Halliburton II*, 134 S. Ct. at 2408 (quoting *Basic*, 485 U.S. at 246-47).

2. Valeant Securities Traded in Efficient Markets During the Class Period

During the Class Period, Valeant stock, including its preferred stock and option contracts, and Valeant senior notes were widely traded in efficient markets. To establish that the markets for Valeant securities were efficient, entitling plaintiffs to the fraud-on-the-market presumption, the *Cammer* factors are generally considered. *Sterling Heights*, 2015 WL 5097883, at *6 (citing *Cammer v. Bloom*, 711 F. Supp. 1264, 1286-87 (D.N.J. 1989)). The *Cammer* factors are meant to be a non-exhaustive list of relevant factors. *See, e.g., In re DVI, Inc. Sec. Litig.*, 639 F.3d 623, 634 n.16 (3d Cir. 2011) (“*DVI II*”); *Local 703, I.B. of T. Grocery & Food Emps. Welfare Fund v. Regions Fin. Corp.*, 762 F.3d 1248, 1255 (11th Cir. 2014); *Waggoner v. Barclays PLC*, 875 F.3d 79, 98 (2d Cir. 2017), *cert. denied*, __ U.S. __, 138 S. Ct. 1702 (2018); *In re Petrobras Sec. Litig.*, 862 F.3d 250, 278 (2d Cir. 2017).

In assessing market efficiency, courts within the Third Circuit also frequently utilize three additional factors, typically referred to as the *Krogman/Unger* factors. *Sterling Heights*, 2015 WL 5097883, at *6.

In support of TIAA's motion, plaintiffs offer expert declarations from Professor Steven P. Feinstein and Cynthia L. Jones, CFA. Professor Feinstein is a Professor of Finance at Babson College with a Ph.D. in Economics from Yale University. Feinstein Rpt., ¶¶6-16. As the founder and president of the financial consulting firm, Crowninshield, Professor Feinstein is an expert in the financial markets and has been asked to analyze and render an opinion on market efficiency regarding Valeant common stock and options traded during the Class Period. *Id.*, ¶¶1-5. Cynthia Jones has an M.B.A. from Rutgers University, and is the vice president of the financial consulting firm, Monument Economics Group. Ms. Jones has been qualified in federal district courts to provide opinions concerning class certification matters, including market efficiency. Jones Rpt., ¶¶6-8. Here, Ms. Jones has been asked to analyze and render an opinion on market efficiency regarding Valeant senior notes traded during the Class Period. *Id.*, ¶¶1-5.

Professor Feinstein analyzed the market for Valeant common stock and options using the *Cammer* and *Krogman/Unger* factors. Feinstein Rpt., ¶¶37-213. In addition to analyzing Valeant stock trading information and SEC filings, Professor Feinstein undertook an economic event study to test whether the price of Valeant common stock and options reacted to material and unexpected, Valeant-related news. *Id.* Based on his analysis and studies, Professor Feinstein concludes that, during the Class Period,

Valeant common stock and options satisfy all of the *Cammer* and *Krogman/Unger* factors, strongly demonstrating market efficiency. *Id.*, ¶¶17-20.

Ms. Jones similarly analyzed the markets for the Valeant senior notes using the *Cammer* and *Krogman* factors. Ms. Jones also undertook economic event studies for each of the Valeant senior notes to test whether the price of these securities reacted to material and unexpected, Valeant-related news. Jones Rpt., ¶¶33-96. Ms. Jones concluded that each of the Valeant senior notes traded in efficient markets during the Class Period. *Id.*

a. Valeant’s NYSE Listing Is Strong Evidence of Market Efficiency

Throughout the Class Period, Valeant common stock was listed and traded on one of the largest and most developed securities markets in the world, the NYSE. *See* Feinstein Rpt., ¶¶25, 64. Congress and the courts, including the Supreme Court, recognize that the price of stocks traded on such well-developed markets generally reflects publicly available information, the hallmark of an efficient market. In *Basic*, the Supreme Court noted that “[i]n drafting . . . [the Exchange Act], Congress expressly relied on the premise that securities markets are affected by information, and enacted legislation to facilitate an investor’s reliance on the integrity of those markets.” *Basic*, 485 U.S. at 445-46.

Consistent with *Basic*, courts routinely recognize that a stock’s listing on the NYSE is strong evidence that the market for the stock is efficient. *See, e.g., DVI II*,

639 F.3d at 634 (“[T]he listing of a security on a major exchange such as the NYSE or the NASDAQ weighs in favor of a finding of market efficiency.”); *In re Merck & Co., Sec., Derivative & “ERISA” Litig.*, No. 1658 (SRC), 2013 WL 396117, at *11 (D.N.J. Jan. 30, 2013) (“In this case, however, a *Cammer* analysis is not required for Plaintiffs to establish market efficiency. It is undisputed that Merck stock trades on the New York Stock Exchange (‘NYSE’), consistently recognized by courts – including the Third Circuit and other United States Courts of Appeals – as ‘open and developed’ and thus ‘well suited for application of the fraud on the market theory.’”); *In re Comput. Scis. Corp. Sec. Litig.*, 288 F.R.D. 112, 119 (E.D. Va. 2012); *Lumen v. Anderson*, 280 F.R.D. 451, 459-60 (W.D. Mo. 2012); Feinstein Rpt., ¶64.

b. *Cammer* Factor 1: Weekly Trading Volume

For *Cammer* Factor 1, an “‘average weekly trading of two percent or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; one percent would justify a substantial presumption.’” *In re Merck & Co. Inc. Vytarin/Zetia Sec. Litig.*, No. 08-2177 (DMC)(JAD), 2012 WL 4482041, at *5 (D.N.J. Sept. 25, 2012). High trading volume “is often seen as indicative of efficiency because ‘many investors are executing trades on the basis of newly available or disseminated corporate information.’” *DVI I*, 249 F.R.D. at 208 (quoting *Cammer*, 711 F. Supp. at 1286). The trading volume of Valeant equity and debt securities during the Class Period satisfies this factor.

The weekly trading volume during the Class Period of 19.1 million shares, equal to 5.6% of all Valeant shares outstanding, far exceeds the 2% threshold established in *Cammer* as indicative of market efficiency. Feinstein Rpt., ¶¶49-51; *see also Vytorin/Zetia*, 2012 WL 4482041, at *5; *Schering-Plough*, 2012 WL 4482032, at *5.

Valeant senior notes were actively traded. Jones Rpt., ¶¶37-42. Concerns about transparency issues in the over-the-counter market for bonds have been largely eliminated since the inception of FINRA's TRACE system, which publicly reports trading information for the bond market. *Id.*, ¶27. Based on the data collected by FINRA, the average weekly trading volumes for Valeant bonds during the Class Period ranged from \$5.9 million for the 7.25% Notes Due 2025 to \$122.2 million for the 6.125% Notes Due 2025, with an average turnover ranging from 0.9% to 3.8%. *Id.*, ¶¶39-40; *see also id.*, Ex. 8. The higher trader activity exhibited by the newly issued Valeant bonds is consistent with findings in the pertinent academic literature on trading activity for corporate bonds and findings by courts certifying classes of debt security investors. *Id.*, ¶39 & n.36; *see also DVII*, 249 F.R.D. at 214 (1.25% average weekly trading volume); *Burns*, 967 F. Supp. 2d at 1161 (1% to 2% for nine bonds); *NII Holdings*, 311 F.R.D. at 410; *Bennett*, 298 F.R.D. at 508.

Ms. Jones also found that the aggregate trading volume as a percentage of par value (weighted by the amount issued for each Valeant note) was 2.1%, amply

satisfying *Cammer*'s threshold for a "substantial presumption" of market efficiency despite differences in stock and bond market turnover. Jones Rpt., ¶40; *see also DVI I*, 249 F.R.D. at 209.

c. *Cammer* Factor 2: Analyst and Media Coverage

Security analysts serve to facilitate information flow and promote efficiency, and only a few analysts are necessary to strengthen the presumption of efficiency. In fact, according to economic literature, coverage by just one or two analysts strengthens the presumption of efficiency. Feinstein Rpt., ¶56; *see also DVI I*, 249 F.R.D. at 209 (coverage by three analysts found sufficient); *Winstar*, 290 F.R.D. at 446 (same). Here, at least 29 firms covered Valeant during the Class Period, publishing hundreds of reports on the Company's business as a whole, reporting on information defendants provided to the market in SEC filings, press releases, and conference calls with analysts and investors. The information in these reports was equally available and relevant to both equity and bond investors. *See* Jones Rpt., ¶¶43-48; *id.*, Ex. 10; *see also* Feinstein Rpt., ¶¶52-57; *Winstar*, 290 F.R.D. at 446 (noting that analysts' coverage of the company as a whole was instructive to finding efficiency for both bonds and stock); *Burns*, 967 F. Supp. 2d at 1150, 1162. The analyst coverage of Valeant easily satisfies this *Cammer* factor and supports a finding that the markets for Valeant securities were efficient. *See McIntire*, 38 F. Supp. 3d at 431.

Additionally, Valeant's senior note investors also benefited from detailed and comprehensive reports issued by rating agencies such as Moody's Investor Service ("Moody's") and Standard & Poor's Rating Services ("S&P"), which rated Valeant bonds. Jones Rpt., ¶46. Valeant's bond ratings were continuously monitored by Moody's and S&P during the Class Period. *Id.* This additional source of Valeant-related information contributes to the market efficiency analysis for Valeant senior notes. *Id.*; *see also Burns*, 967 F. Supp. 2d at 1150.

Courts have also held that widespread media coverage supports a finding of efficiency. *See Vytarin/Zetia*, 2012 WL 4482041, at *5. Here, over 15,000 articles concerning Valeant were published during the Class Period by major news sources. Feinstein Rpt., ¶¶59-61. In conjunction with wide analyst coverage, Valeant's extensive media coverage provides further support for the efficiency of the markets for Valeant securities. *DVI I*, 249 F.R.D. at 209-10.

d. Cammer Factor 3: Market Makers

"*Cammer* explains that '[t]he existence of market makers and arbitrageurs would ensure completion of the market mechanism; these individuals would react swiftly to company news and reported financial results by buying or selling stock and driving it to a changed price level.'" *Carpenters Pension Tr. Fund of St. Louis v. Barclays PLC*, 310 F.R.D. 69, 79 (S.D.N.Y. 2015) (quoting *Cammer*, 711 F. Supp. at 1286-87). During the Class Period, Valeant common stock traded on the venerable

NYSE, which means that trading in Valeant stock was done by a highly developed network of brokers, and this market was overseen by the NYSE-designated specialist market maker for Valeant stock. Feinstein Rpt., ¶¶64.⁹ Indeed, there were at least 217 active market makers for Valeant common stock during the Class Period, including firms such as Barclays, Goldman Sachs, Morgan Stanley and UBS. As Professor Feinstein concludes, these facts are “compelling evidence of the efficiency of the market for Valeant stock.” Feinstein Rpt., ¶¶62-68; *see also In re Am. Realty Capital Props., Inc. Litig.*, No. 15-mc-40 (AKH), 2017 WL 3835881, at *1 (S.D.N.Y. Aug. 31, 2017).

For corporate debt securities like the Valeant senior notes, it is not market makers *per se* who facilitate the trading but rather a network of dealers known as “market participants.” Jones Rpt., ¶49. These dealers supply “immediacy” to the market, providing “reliable price information to market participants.” *Id.* The presence of these “large, active professionals also increases the efficiency of the market for these securities.” *Id.* During the Class Period, Valeant senior notes benefited from a range of 54 to 94 dealers – including major institutions such as Barclays, Merrill Lynch, Citigroup, Goldman Sachs and J.P. Morgan – several of

⁹ Courts have found that a stock’s trading on the NYSE with a designated market maker supports a finding of market efficiency. *See In re Bos. Sci. Corp. Sec. Litig.*, 604 F. Supp. 2d 275, 284 (D. Mass. 2009); *Nguyen v. Radiant Pharm. Corp.*, 287 F.R.D. 563, 573 (C.D. Cal. 2012).

whom, as alleged in the Complaint (*see* ¶¶564-567), served as underwriters for the bonds. Jones Rpt., ¶50. The significant number of market participants and dealers, far exceeding the five to ten market-maker benchmark set forth in *Cammer*, contributes to a finding of efficiency in the Valeant bond market. *Id.*; *see also Cammer*, 711 F. Supp. at 1293.

Additionally, more than 100 major institutional investors – which typically employ in-house financial analysts – invested in Valeant equity and debt securities during the Class Period. Feinstein Rpt., ¶58; Jones Rpt., ¶¶61-64. Typically, the in-house analysts, or “buy-side analysts,” conduct research on securities the institutions buy, enabling the institutions to act as arbitrageurs and enhance market efficiency. *See DVI I*, 249 F.R.D. at 215.¹⁰

The large number of market makers and institutional investors transacting in Valeant securities during the Class Period is further evidence of market efficiency. Feinstein Rpt., ¶¶58, 62-68; Jones Rpt., ¶¶49-51.

e. *Cammer* Factor 4: Form S-3 Eligibility

A company is eligible to file a Form S-3 registration statement if it has filed SEC reports for 12 consecutive months and has at least \$75 million of float. *See* 17 C.F.R. §239.13. The ability to file this form indicates that the company is easily able

¹⁰ *See also Todd v. STAAR Surgical Co.*, No. CV-14-05263-MWF-RZ, 2017 WL 821662, at *8 (C.D. Cal. Jan. 5, 2017) (quoting *Countrywide*, 273 F.R.D. at 614); *In re Alstom SA Sec. Litig.*, 253 F.R.D. 266, 280 (S.D.N.Y. 2008).

to issue new securities and is evidence of market efficiency. *DVII*, 249 F.R.D. at 210 & n.23.

Valeant was eligible to file Form S-3 registration statements for most of the Class Period and did so on June 10, 2013. Feinstein Rpt., ¶¶69-78; Jones Rpt., ¶¶52-55; *see also Schering-Plough*, 2012 WL 4482032, at *5; *Vytorin/Zetia*, 2012 WL 4482041, at *5. Indeed, Valeant’s float averaged \$27.9 billion during the Class Period, far exceeding the S-3 registration threshold. Feinstein Rpt., ¶¶73, 82. Therefore, *Cammer* Factor 4 is met, evidencing market efficiency.

f. *Cammer* Factor 5: Valeant Securities Reacted to Unexpected, Company-Specific Information

The final *Cammer* factor focuses on whether plaintiffs can make a *prima facie* showing that, during the Class Period, Valeant securities responded to the release of new company-specific “unexpected” news events. *Cammer*, 711 F. Supp. at 1287. To test whether Valeant securities responded to new, unexpected Valeant-related information, Professor Feinstein and Ms. Jones conducted event studies for the Valeant securities at issue here. *See* Feinstein Rpt., ¶¶99-213; Jones Rpt., ¶¶74-96. The Second Circuit has noted that event studies are ““standard operating procedure in federal securities litigation,”” *In re Vivendi, S.A. Sec. Litig.*, 838 F.3d 223, 253 (2d Cir. 2016), but “a plaintiff seeking to demonstrate market efficiency need not always present direct evidence of price impact through event studies.” *Waggoner*, 875 F.3d at

97. *See also DVI II*, 639 F.3d at 634-35; *Schering-Plough*, 2012 WL 4482032, at *5; *Sterling Heights*, 2015 WL 5097883, at *6.

Professor Feinstein's and Ms. Jones's event studies examined the causal relationship between the announcement of Valeant-specific news and a response in the price of Valeant common stock and bonds. Feinstein Rpt., ¶¶99-180; Jones Rpt., ¶¶74-96. The statistical analysis both experts conducted determined how much of that price response can be explained by market and peer group factors rather than company-specific information. The portion of the price change that cannot be attributed to market and peer-group factors is called the "residual return." Feinstein Rpt., ¶101; Jones Rpt., ¶¶77-85. If the residual return over a particular event period is statistically significant, this indicates that the price movement was caused by new and unexpected company-specific information. Feinstein Rpt., ¶102; Jones Rpt., ¶85. A cause-and-effect relationship between new and unexpected, Valeant-specific information and the reaction in the price of Valeant common stock or bonds is evidence of market efficiency. Feinstein Rpt., ¶102; Jones Rpt., ¶74.¹¹ Based on their

¹¹ As Ms. Jones notes in her report, "bond prices would not, necessarily, be expected to respond to information that might cause a significant change in stock prices" because they "tend to react to information that affects the probability or likelihood of default." Jones Rpt., ¶¶74-76. Moreover, "[p]rice responsiveness of bonds is determined, in part, by relative coupon rates and time until maturity, with lower coupon and longer maturity term bonds exhibiting greater price sensitivity to information." *Id.* Therefore, as to the Valeant senior notes at issue in this litigation, because they had varying issue dates, coupon rates and maturity dates, Ms. Jones did not "expect them to respond uniformly to new, company-specific information" but did

respective event studies for Valeant common stock, options and senior notes, both Professor Feinstein and Ms. Jones determined that there was a cause-and-effect relationship between new, material Valeant-related information resulting in appropriate movements in the prices of Valeant securities at issue and evidencing that they traded in efficient markets during the Class Period. Feinstein Rpt., ¶¶18, 141, 166, 182, 204, 212; Jones Rpt., ¶¶86-96.

g. Krogman Factor 1: Market Capitalization

Market capitalization is an indicator of market efficiency because investors have greater incentive to invest in more highly capitalized corporations, and such companies tend to be more well-known and closely followed. *See DVI I*, 249 F.R.D. at 212 (citing *Krogman v. Sterritt*, 202 F.R.D. 467, 478 (N.D. Tex. 2001)); Feinstein Rpt., ¶¶80-81; Jones Rpt., ¶56.

During the Class Period, Valeant's market capitalization based on the Company's common stock averaged \$44.2 billion. That market capitalization put Valeant in the first decile of all U.S. companies by size, with higher market capitalization than 90% of all publicly traded companies. Feinstein Rpt., ¶80; *see also* Jones Rpt., ¶¶56-58; *Krogman*, 202 F.R.D. at 478 (finding the fact that a company's market capitalization was in the top 60% of its sample group, derived from NYSE,

expect (and ultimately found) that these securities responded to "credit-relevant information, such as changes in credit ratings, and significant events which reflect on the solvency of the Company." *Id.*

AMEX and NASDAQ listings, weighed in favor of market efficiency). Valeant’s sizeable market capitalization throughout the Class Period far exceeded the market capitalizations of securities found to be trading in efficient markets and, thus, is further evidence of efficiency. *See, e.g., DVI I*, 249 F.R.D. at 212; *Am. Realty*, 2017 WL 3835881, at *1.

For Valeant senior notes, the total aggregate par value was approximately \$17.7 billion during the Class Period. Jones Rpt., ¶23. This number is either similar to or dwarfs the outstanding par value of bonds that several courts have held to be trading in efficient markets. *See, e.g., Winstar*, 290 F.R.D. at 449 (\$1.88 billion); *NII Holdings*, 311 F.R.D. at 412 (\$1.45 billion); *In re HealthSouth Corp. Sec. Litig.*, 261 F.R.D. 616, 636-37 (N.D. Ala. 2009) (ranging from approximately \$870 million to \$3.5 billion); *Bennett*, 298 F.R.D. at 510-11 (ranging from approximately \$14.2 billion to \$18.1 billion). Indeed, a large outstanding par value is *prima facie* evidence of a liquid and efficient market because when more securities are available for trading, “the more likely that a potential buyer or seller is to find a counterpart willing to transact.” *Winstar*, 290 F.R.D. at 449.

h. Krogman Factor 2: Bid-Ask Spread

A bid-ask spread is the difference between the prices at which investors are willing to buy and current stockholders are willing to sell securities, with a low bid-ask spread indicating a more efficient market. *See Sterling Heights*, 2015 WL

5097883, at *6 (citing *Krogman*, 202 F.R.D. at 478); Feinstein Rpt., ¶¶85-89. “A narrow bid-ask spread indicates the presence of an efficient market because it suggests that the stock is liquid and more likely to be traded.” *NII Holdings*, 311 F.R.D. at 413. Courts have found markets for securities efficient with bid-ask spreads ranging from 0.02% to 2.91%. *See, e.g., In re JPMorgan Chase & Co. Sec. Litig.*, No. 12 Civ. 03852 (GBD), 2015 WL 10433433, at *7 (S.D.N.Y. Sept. 29, 2015) (bid-ask spread of 0.02%); *NII Holdings*, 311 F.R.D. at 413 (bid-ask spread of 0.10%); *Countrywide*, 273 F.R.D. at 619 (bid-ask spread of 0.51%); *Petrie v. Elec. Game Card, Inc.*, 308 F.R.D. 336, 356 (C.D. Cal. 2015) (bid-ask spread of 2.91%).

Valeant common stock had a tight bid-ask spread during the Class Period, averaging 0.02%. Feinstein Rpt., ¶87. As for Valeant senior notes, the median bid-ask spread ranged from 0.24% to 0.47%. Jones Rpt., ¶66. Thus, the respective bid-ask spreads for Valeant equity and debt securities trading during the Class Period each support a finding of market efficiency. Feinstein Rpt., ¶¶85-89; Jones Rpt., ¶69.

i. *Krogman* Factor 3: Float

A stock’s “public float” is defined as “the percentage of a security held by the public as opposed to company insiders.” *DVII*, 249 F.R.D. at 212 (citing *Krogman*, 202 F.R.D. at 478). “[A] high percentage of insiders holding stock (low float) weighs against a finding of market efficiency . . . while a low percentage of insiders holding stock (high float) supports a finding of market efficiency.” *Petrie*, 308 F.R.D. at 357;

Feinstein Rpt., ¶¶82-84; Jones Rpt., ¶59. During the Class Period, the average float of Valeant common shares was 63%. Feinstein Rpt., ¶83; *see also McIntire*, 38 F. Supp. 3d at 433 (public float of 31%-43% of shares outstanding supported a finding of market efficiency).

As for Valeant senior notes, the fact that they were widely held by numerous sophisticated institutional investors during the Class Period also supports market efficiency. Jones Rpt., ¶¶59-64; *id.*, Ex. 12; *see also DVI I*, 249 F.R.D. at 212 n.26. As Ms. Jones discusses in her report, the “majority of the eleven Senior Notes were held by more than 100 different institutional investors.” Jones Rpt., ¶64; *In re Petrobras Sec. Litig.*, 312 F.R.D. 354, 366 (S.D.N.Y. 2016), *aff’d in part and vacated in part on other grounds*, 862 F.3d 250 (2d Cir. 2017).

j. Valeant Option Contracts Traded in an Efficient Market During the Class Period

A stock option is essentially a contract that allows the purchaser to either buy or sell the underlying common stock at a fixed price for a finite time period. Feinstein Rpt., ¶¶184-189. Consequently, the price of the option is directly linked to the price of the underlying security – here, Valeant common stock. Because an option market is tied to the market of the underlying security, where that security trades in an efficient market, the options are presumed to as well. *See Merck*, 2013 WL 396117, at *12 (where the security underlying the options contracts entered into by class members traded on an efficient market, “it is logical and appropriate to apply the same

presumption of reliance to class members who exercised options that were derivatives of that stock and whose value depended on the value of [that] stock”); *see also McIntire*, 38 F. Supp. 3d at 433; *Deutschman v. Beneficial Corp.*, 841 F.2d 502, 504 (3d Cir. 1988); *In re Enron Corp. Sec. Derivative & “ERISA” Litig.*, 529 F. Supp. 2d 644, 754 (S.D. Tex. 2006). As demonstrated by Professor Feinstein’s analysis of Valeant stock and option data, extending the presumption of market efficiency to Valeant’s option market is well-supported in this case. Feinstein Rpt., ¶¶184-213.

* * *

All of the *Cammer* and *Krogman* factors evidence that the market for Valeant securities was efficient during the Class Period. Thus, plaintiffs have demonstrated that class-wide reliance is appropriately presumed in accordance with the fraud-on-the-market doctrine.

C. Damages Are Measurable on a Class-wide Basis

“[I]t remains the law in the Third Circuit that the need to perform individual damages calculations does not foreclose class certification under Rule 23(b)(3).” *DFC Glob.*, 2016 WL 4138613, at *14 (citing *Neale*, 794 F.3d at 374; *Sterling Heights*, 2015 WL 5097883, at *13). This is because “[t]he focus of the predominance inquiry is on liability, not damages.” *Grubb v. Green Tree Servicing, LLC*, No. 13-07421 (FLW), 2017 WL 3191521, at *22 (D.N.J. July 27, 2017); *see also Reyes v. Netdeposit, LLC*, 802 F.3d 469, 481 n.12 (3d Cir. 2015).

The Supreme Court’s decision in *Comcast Corp. v. Behrend*, 569 U.S. 27 (2013), likewise focused on the issue of liability; specifically whether an expert’s antitrust damages model partially based on theories of liability previously dismissed by the trial court satisfied Rule 23(b)(3)’s predominance requirement. *See Dzielak v. Whirlpool Corp.*, No. 2:12-0089 (KM)(JBC), 2017 WL 1034197, at *13 (D.N.J. Mar. 17, 2017); *In re Urban Outfitters, Inc., Sec. Litig.*, No. 13-5978, 2016 WL 1043014, at *3 n.4 (E.D. Pa. Feb. 29, 2016).

As the Third Circuit recently emphasized, *Comcast* “makes it clear that the predominance analysis was specific to the antitrust claim at issue.” *Neale*, 794 F.3d at 374; *see also In re Heckmann Corp. Sec. Litig.*, No. 10-378-LPS-MPT, 2013 WL 2456104, at *14 (D. Del. June 6, 2013) (“[P]laintiff correctly points out that while *Comcast* addresses class action certification, it was not in regard to a securities fraud litigation, which have generally been certified for class status.”); *Sterling Heights*, 2015 WL 5097883, at *13. In fact, if a court were to deny class certification based on a finding of individualized damages, such a rule would “amount[] to an abuse of discretion.” *Neale*, 794 F.3d at 375.

While not necessary for certification, damages related to the Class’s Exchange Act claims can and will be calculated using a common methodology for purchasers of Valeant securities. *See Feinstein Rpt.*, ¶¶214-228; *Jones Rpt.*, ¶¶97-99. In sum, the damages per security will be the difference between inflation on the security purchase

date and inflation on the security sale date. Feinstein Rpt., ¶¶214-220; Jones Rpt., ¶¶97-99.¹² Per security damages will be calculated using the same mathematical computation for all Class members.

Damages for the Class’s Securities Act claims related to Valeant’s March 2015 stock offering are even more straightforward and are calculated using a computation described by the statute itself. *See Constar*, 585 F.3d at 785 (“damages are calculated as the difference between the purchase price of a security and the price at the time suit was filed or the security was sold, and any decline in value is presumed to be caused by the misrepresentation”) (citing 15 U.S.C. §77k(e)); *N.J. Carpenters Health Fund v. Royal Bank of Scot. Grp., PLC*, No. 08-CV-5310 (DAB), 2016 WL 7409840, at *10 (S.D.N.Y. Nov. 4, 2016).

Although the specific amount of total damages may vary among Class members – due to, for example, the time and volume of Valeant securities acquired – “[r]ecognition that individual damages calculations do not preclude class certification under Rule 23(b)(3) is well nigh universal.” *Neale*, 794 F.3d at 374-75. Thus, like in

¹² In certifying a federal securities fraud class action, one court recently noted that “[t]he Supreme Court long ago agreed with this approach when it held ‘the correct measure of damages . . . is the difference between the fair value of all [the plaintiff] received and the fair value of what he would have received had there been no fraudulent conduct.’” *KBC Asset Mgmt. NV v. 3D Sys. Corp.*, No. 0:15-2393-MGL, 2017 WL 4297450, at *7 (D.S.C. Sept. 28, 2017) (quoting *Affiliated Ute Citizens of Utah v. United States*, 406 U.S. 128, 155 (1972)).

Waggoner, “[t]his is not a case where a plaintiff’s damages model does not track his theory of liability.” *Waggoner*, 875 F.3d at 106.

D. A Class Is Superior to Other Available Methods for the Fair and Efficient Adjudication of This Action

The second Rule 23(b)(3) requirement is that the Court determines that “a class action is superior to other available methods for fairly and efficiently adjudicating the controversy.” Fed. R. Civ. P. 23(b)(3). Courts uniformly recognize that the class action device is superior to other available methods for the fair and efficient resolution of large-scale securities class actions comprised of thousands of separate individual cases. *See Merck*, 2013 WL 396117, at *13; *see also Phillips Petroleum Co. v. Shutts*, 472 U.S. 797, 809 (1985); *Amchem Prods. v. Windsor*, 521 U.S. 591, 617 (1997).

Here, each of the Rule 23(b)(3) factors weigh strongly in favor of class certification. The Class members’ interests in individually controlling the prosecution of separate actions is minimal because the trouble and expense of most individual actions, when weighed against the individual recoveries potentially obtainable, would be prohibitive. Additionally, the maintenance of a class action in this District ensures an efficient expenditure of resources and consistent rulings concerning matters relating to the Class’s claims. *See Merck*, 2013 WL 396117, at *13; *DVI I*, 249 F.R.D. at 218. Additionally, because Valeant’s U.S. headquarters is in this District and many of the acts and practices complained of occurred in substantial part in this District, the District of New Jersey is a desirable forum for this class action.

Finally, plaintiffs do not foresee any management difficulties that will preclude this action from being maintained as a class action. Indeed, the parties have engaged in significant motion to dismiss briefing, undertaken extensive document discovery, and efficiently worked together in formulating and jointly submitting a protective and confidentiality order (*see* ECF No. 244) and a proposed Rule 26(f) Scheduling Order (submitted September 7, 2018). The litigation to date evidences that proceeding as a class action is the most efficient manner to litigate the Class's claims. *See In re MF Glob. Holdings Ltd. Inv. Litig*, 310 F.R.D. 230, 239 (S.D.N.Y. 2015). Consistent with the requirements of Rule 23(b)(3), certification of this action as a class action is superior to other available methods for fairly and efficiently adjudicating the controversy.

IV. CONCLUSION

For all of these reasons, Lead Plaintiff's motion should be granted.

DATED: September 28, 2018

Respectfully submitted,

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**UNITED STATES DISTRICT COURT
DISTRICT OF NEW JERSEY**

IN RE VALEANT PHARMACEUTICALS
INTERNATIONAL, INC. SECURITIES
LITIGATION

Master No. 3:15-cv-07658-MAS-LHG

DECLARATION OF
PROFESSOR STEVEN P. FEINSTEIN, PH.D., CFA
SEPTEMBER 28, 2018

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I. SCOPE OF PROJECT AND REPORT

1. I was asked by Robbins Geller Rudman & Dowd LLP, Lead Counsel for Plaintiffs, to determine whether the common stock of Valeant Pharmaceuticals International, Inc. (“Valeant” or the “Company”) traded in an efficient market during the period from 4 January 2013 to 15 March 2016 (the “Class Period”).¹ I was also asked to determine whether the exchange-traded call and put options on Valeant common stock (“Valeant options”) traded in an efficient market during the Class Period.

2. In addition, I have been asked to opine on: (i) whether damages in this matter can be computed using a common methodology for all Class members in connection with their claims under Section 10(b) of the Securities Exchange Act of 1934 (the “Exchange Act”) and U.S. Securities and Exchange Commission (“SEC”) Rule 10b-5 adopted thereunder (collectively, “Section 10(b)”); (ii) whether Section 20A damages can be computed using a common methodology for all Class members who have claims under Section 20(A) of the Exchange Act; and (iii) whether Section 11 damages can be computed using a common methodology for all Class members who have claims under Section 11 of the Securities Act of 1933 (the “Securities Act”).

3. Toward these ends, I analyzed the markets for Valeant common stock and options, the price behavior of the securities, and the factors that are generally accepted to be indicative of market efficiency. I examined Company press releases, conference call transcripts, security analyst reports, news articles, SEC filings, the common stock prices, trading volume, daily prices of the put and call options, the performance of the overall stock market, and the performance of Valeant’s

¹ As described herein, I also analyzed the factors that are generally accepted to be indicative of market efficiency for three sub-intervals within the Class Period: 4 January 2013 through 15 March 2014 (“Interval-1”), 16 March 2014 through 16 March 2015 (“Interval-2”), and 17 March 2015 through 15 March 2016 (“Interval-3”). Unless otherwise stated herein, my conclusions as to the Class Period apply equally to all intervals.

industry sector, as well as other pertinent data and documents. I read the Consolidated Complaint for Violations of the Federal Securities Laws (“Complaint”) dated 24 June 2016, and considered the allegations therein. Exhibit-1 lists the documents I considered in preparing this report and arriving at the opinions expressed herein.

4. This report presents my methodology, findings, and conclusions.

5. I understand that discovery is ongoing in this matter. I reserve the right to amend, refine, or modify my opinion and report, including in the event any additional information or analyses become available.

II. CREDENTIALS

6. I am an Associate Professor of Finance at Babson College, and the founder and president of Crowninshield Financial Research, Inc., a financial economics consulting firm.

7. I hold a Ph.D. in Economics from Yale University, a Master of Philosophy degree in Economics from Yale University, a Master of Arts in Economics from Yale University, and a Bachelor of Arts degree in Economics from Pomona College. I also hold the Chartered Financial Analyst (“CFA”) designation, granted by the CFA Institute.

8. At Babson College, I have taught undergraduate and MBA level courses in Capital Markets, Investments, Equity Analysis, Fixed Income Analysis, Options and Futures, Financial Management, Risk Management, Quantitative Methods, and Security Valuation. I have also taught executive courses on investments and corporate financial management for numerous corporations. Other courses I have taught are listed in my curriculum vitae, which is attached as Exhibit-2.

9. At Babson College, I have held the Chair in Applied Investments and served as the Director of the Stephen D. Cutler Investment Management Center, a research and education center dedicated to the study and teaching of investments and capital markets.

10. Prior to my joining the faculty at Babson College, I taught finance at Boston University. Previously, I was an Economist at the Federal Reserve Bank of Atlanta where my primary responsibilities were to monitor financial markets, analyze proposed regulation, and advise the Bank President in preparation for his participation in meetings of the Federal Open Market Committee – the government body responsible for monetary policy in the United States.

11. I have published in the field of finance. My finance articles have appeared in the *Atlanta Federal Reserve Bank Economic Review*, *Derivatives Quarterly*, *Derivatives Weekly*, *The Engineering Economist*, *The Journal of Risk*, *The American Bankruptcy Institute Journal*, *The Journal of Financial Planning*, *The Journal of Forensic Economics*, *Managerial Finance*, *Risk Management*, and *Primus*. I am the author of *Finance and Accounting for Project Management*, published by the American Management Association. I wrote two chapters in the book *The Portable MBA in Finance and Accounting* – one on corporate financial planning and the other on risk management. I have presented research at the annual conventions of the American Finance Association, the Academy of Financial Services, the Multinational Finance Society, the Financial Management Association, the Taxpayers Against Fraud Education Fund Conference, and the International Conference on Applied Business Research. Co-authored papers of mine have been presented at the Eastern Finance Association meetings and the Midwestern Finance Association meetings. A list of all the publications I authored in the previous ten years can be found in my curriculum vitae, which is attached as Exhibit-2.

12. I have been selected to review papers for numerous finance journals and conferences, and I have reviewed finance textbook manuscripts for Prentice-Hall, Elsevier, Blackwell, and Southwestern Publishing. I have been quoted on matters relating to finance and investments in *The Wall Street Journal*, *The Washington Post*, *The New York Times*, *The Financial*

Times, The Boston Globe, and Bloomberg News, and my research relating to financial analysis and valuation has been discussed in The Wall Street Journal, Bond Buyer, and Grant's Municipal Bond Observer.

13. I am a member of the American Finance Association, the Financial Management Association, the North American Case Research Association, the National Association of Forensic Economics, the CFA Institute, and the CFA Society Boston, where I have served as a member of the education committee and ethics subcommittee. I served on the Fixed Income Specialization Examination Committee of the CFA Institute.

14. The CFA designation is the premier credential for financial analysts worldwide. In order to receive this credential, applicants must pass a series of three exams covering such topics as economics, equity analysis, financial valuation, business analysis, quantitative methods, investment analysis, portfolio management, risk management, financial accounting, and ethical and professional standards. For over ten years I taught in the Boston University CFA Review Program and the CFA Society Boston Review Program – two of the leading review programs that prepared candidates for the CFA exams. In both of these programs I taught candidates at the most advanced level.

15. In addition to my teaching, research, CFA, and academic community responsibilities, I practice extensively as a financial consultant. Past clients include the SEC, the Internal Revenue Service, the Attorney General of the State of Illinois, and the National Association of Securities Dealers. As a financial consultant, I have conducted analyses and presented opinions related to markets, valuation, and damages in over 100 cases. Exhibit-3 lists my prior testimony appearances over the past four years.

16. I am the sole owner of the consulting firm Crowninshield Financial Research, which receives compensation for the work performed by me and the analysts who assist me on this case. My firm is being compensated at a rate of \$875 per hour for my work. My compensation is neither contingent on my findings nor on the outcome of this matter.

III. CONCLUSIONS

17. Valeant stock traded in an efficient market over the course of the Class Period. Valeant stock satisfied the factors set forth in *Cammer v. Bloom*, 711 F. Supp. 1264, 1273 (D.N.J. 1989), and *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D. Tex. 2001), which, consistent with financial economic principles and empirical research, indicate market efficiency.

18. Valeant stock satisfied all of the *Cammer* and *Krogman* factors by wide margins. In particular, with a high degree of statistical certainty, event study analysis proves that there was a cause and effect relationship between the release of new, Company-specific information and movements in Valeant's stock price. Additional statistical tests examining the behavior of Valeant stock on important announcement dates collectively further indicate that the Valeant stock responded to new Company-specific information throughout the Class Period. The empirical analyses not only indicate market efficiency, but prove that the stock demonstrated market efficiency.

19. Similarly, event study analysis demonstrates that there was a cause and effect relationship between the release of new, Company-specific information and movements in the prices of Valeant's put and call option contracts during the Class Period. Valeant's option prices responded in a statistically significant fashion to new, Company-specific information, which not only indicates market efficiency, but demonstrates market efficiency.

20. Based on the foregoing, I conclude that Valeant stock and options traded in efficient markets over the course of the Class Period.

21. For each respective claim (i.e. Section 10(b), Section 20A, and Section 11), damages in this matter can be computed for all Class members using a common methodology that is consistent with Plaintiffs' allegations of liability.

IV. BACKGROUND

A. About the Company

22. Throughout the Class Period, Valent described itself as a “specialty pharmaceutical company that develops, manufactures and markets a broad range of pharmaceutical products and medical devices.”² The Company's primary product focus was in dermatology and neurology therapeutic classes.³

23. The Company's stated business strategy was to focus on “core geographies and therapeutic classes that offer attractive growth opportunities while maintaining our lower selling, general and administrative cost model and decentralized operating structure.”⁴ Another “critical element” of the Company's stated strategy was business development, or growth through acquisition.⁵ Over the course of the Class Period, Valeant acquired 12 companies for aggregate consideration totaling \$30.3 billion.

² Valeant Pharmaceuticals International, Inc., Form 10-K for fiscal year ended 31 December 2012, filed 28 February 2013, p. 1.

³ Id.

⁴ Valeant Pharmaceuticals International, Inc., Form 10-K for fiscal year ended 31 December 2015, filed 29 April 2016, p. 1.

⁵ Id.

24. For the fiscal years 2012, 2013, 2014, and 2015, the Company reported revenues of \$3.5 billion, \$5.8 billion, \$8.3 billion, and \$10.4 billion, respectively.⁶ The Company reported earnings of -\$116 million (-\$0.38 per share), -\$866.1 million (-\$2.70 per share), \$880.7 million (\$2.63 per share), and -\$291.7 million (-\$0.85 per share) for these fiscal years, respectively.⁷

25. Prior to and throughout the Class Period, Valeant common stock was listed and traded on the New York Stock Exchange (“NYSE”) and the Toronto Stock Exchange (“TSX”) under the symbol VRX.⁸

26. During the Class Period, Valeant’s common stock price peaked at \$262.52 per share on 5 August 2015, according to price data obtained from the Center for Research in Security Prices (“CRSP”), a reliable data source that is widely used by academic researchers and investment professionals. By the close of trading on 15 March 2016, the last day of the Class Period, Valeant’s stock price had fallen to \$33.51 per share. The share price decline from 5 August 2015 to 15 March 2016 was \$229.01 per share, representing a loss of 87.2%.

27. During the Class Period, the total value of Valeant’s outstanding common stock peaked at \$90.0 billion on 5 August 2015. By 15 March 2016, the last day of the Class Period, the total outstanding value of the common shares had fallen to \$11.5 billion, also representing a decline of 87.2% from the Class Period peak.

⁶ Id., p. 39.

⁷ Id., p. 39.

⁸ Id., p. 35.

1. Public Offering of Valeant Stock

28. On 17 March 2015, the Company conducted a follow-on offering in which the Company and certain existing stockholders sold a total of 7,286,432 shares of common stock at \$199.00 per share.⁹ The deal price of \$199.00 per share represented a \$3.42 per share discount to the \$202.34 per share closing price on 16 March 2015, the previous trading day.¹⁰ Following the offering, the Company had 344.0 million shares outstanding.¹¹

V. EFFICIENT MARKET DEFINED

29. The definition of market efficiency set forth by Judge Alfred J. Lechner, Jr. in the 1989 decision in *Cammer v. Bloom*, 711 F. Supp. 1263 (D.N.J.), which is often cited as a legal authority on the meaning of market efficiency and is consistent with the definition of informational efficiency generally accepted by the academic finance community, is set forth below.

“As relevant here, courts have permitted a rebuttable presumption of reliance in the case of securities traded in ‘efficient markets’ (i.e., markets which are so active and followed that material information disclosed by a company is expected to be reflected in the stock price).”
Cammer v. Bloom, 711 F. Supp. 1264, 1273 (D.N.J. 1989).

30. Judge Lechner also cited the definitions offered by commentators Alan R. Bromberg and Lewis D. Lowenfels, and by renowned financial economist and Nobel laureate Eugene Fama.

“An efficient market is one which rapidly reflects new information in price.”

⁹ Valeant Pharmaceuticals International, Inc., Form 424B5, filed 18 March 2015.

¹⁰ *Id.*

¹¹ Valeant Pharmaceuticals International, Inc., Form 424B5, filed 18 March 2015, p. S-14. The underwriters did not exercise any over-allotment option.

Alan Bromberg & Lewis Lowenfels, *Securities Fraud and Commodities Fraud*, §7.4 (Dec. 2003); *see also Cammer*, 711 F. Supp. at 1276.

“A market in which prices always ‘fully reflect’ available information is called ‘efficient.’”

“Efficient Capital Markets: A Review of Theory and Empirical Work,” by Eugene Fama, *Journal of Finance*, 1970, cited in *Cammer*, 711 F. Supp. at 1280.

31. In his 1991 follow-up article titled “Efficient Capital Markets: II,” Professor Fama further elaborated.

“I take the market efficiency hypothesis to be the simple statement that security prices fully reflect all available information A weaker and more economically sensible version of the efficiency hypothesis says that prices reflect information to the point where the marginal benefits of acting on information (the profits to be made) do not exceed the marginal cost.”

“Efficient Capital Markets: II,” Eugene Fama, *Journal of Finance*, 1991, p. 1575.

32. More recently, Professor Fama and a group of other preeminent economists described market efficiency and the state of the profession’s general understanding thusly in an amici curiae brief that they submitted to the U.S. Supreme Court in the *Halliburton II* case.

“There is widespread debate about market efficiency among economists, and the signatories of this brief include participants with varying positions on that debate. It is critical, however, to be clear on what issues are in dispute—and what issues are not. Economists disagree about whether markets perfectly process information and how quickly they do so; about whether prices reflect the fundamental value of the underlying stock; ... and about whether it is possible to ‘beat the market’ by pursuing various investment strategies designed to exploit pricing anomalies. Such disagreements existed when *Basic* [Inc. v. Levinson, 485 U.S. 224] was decided in 1988, and they exist today. But economists do not generally disagree about whether market prices respond to new material information.” **Brief of Financial Economists as Amici Curiae in Support of Respondents, *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc.*, 5 February 2014, p. 3 (emphasis in original).**

33. The Supreme Court in the 1988 *Basic v. Levinson* decision focused on the same important characteristic at the heart of these definitions of market efficiency.

“The fraud on the market theory is based on the hypothesis that, in an open and developed securities market, the price of a company’s stock is determined by the available material information regarding the company and its business”

Basic v. Levinson, 485 U.S. 224, 108 S. Ct. 978, 988-91, 99 (1998).

34. The Supreme Court’s 2013 *Amgen* decision defined market efficiency similarly.

“The fraud-on-the market premise is that the price of a security traded in an efficient market will reflect all publicly available information about a company”

Amgen Inc. v. Conn. Ret. Plans & Trust Funds, 568 U.S. 455, 133 S. Ct. 1184, 1190 (2013).

35. In its 2014 *Halliburton II* decision, the Supreme Court addressed the cause-and-effect relationship at the center of market efficiency as follows:

“Even the foremost critics of the efficient-capital-markets hypothesis acknowledge that public information generally affects stock prices. ... Debates about the precise degree to which stock prices accurately reflect public information are thus largely beside the point. ‘That the . . . price [of a stock] may be inaccurate does not detract from the fact that false statements affect it, and cause loss,’ which is ‘all that *Basic* requires.’”

Halliburton Co. v. Erica P. John Fund, Inc., 134 S. Ct. 2398, 2410, (2014) (emphasis in original).

36. An efficient market, as defined and discussed by *Cammer*, *Basic*, *Amgen*, *Halliburton II*, Bromberg & Lowenfels, and Professor Fama and other leading scholars, is a market in which available information is incorporated into the price of a security such that the trading price reflects available information with reasonable promptness. As these cases have recognized, market efficiency is relevant to a securities case as it addresses the question of whether false information (e.g., in the form of an alleged misrepresentation or omission) would likely have impacted the prices at which investors bought and sold securities, and which were relied upon.

A. The *Cammer*/Krogman Factors

1. The *Cammer* Factors

37. The *Cammer* opinion lays out five factors that generally indicate whether the market for a security is efficient. As described below, economic rationales support each factor as an indicator of market efficiency. The five factors are: 1) trading volume; 2) coverage by securities analysts; 3) number of market makers; 4) eligibility for S-3 registration; and 5) empirical evidence that the security price reacts to new, company-specific information.

38. Empirical research has confirmed that trading volume, number of market makers, and analyst coverage are indicative of market efficiency.

“Consistent with the efficiency indicators used recently by the courts, the inefficient firms have lower mean trading volume, fewer market makers, lower analyst following, and lower institutional ownership (number and percentage) than efficient firms.”

“The Fraud-on-the-Market Theory and the Indicators of Common Stocks’ Efficiency,” by Brad Barber, Paul Griffin, and Baruch Lev, *The Journal of Corporation Law*, 1994, p. 302.

39. Barber, Griffin & Lev [1994], also found that high institutional ownership is indicative of market efficiency.

40. Consistent with financial economic theory and empirical research, the language used by the *Cammer* court describes the factors not as five necessary factors, but rather as factors that are each indicative of the degree to which the market for a security is expected to be efficient.

“There are several different characteristics pertaining to the markets for individual stocks which are probative of the degree to which the purchase price of a stock should reflect material company disclosures.”
Cammer, 711 F. Supp. at 1283.

41. The *Cammer* opinion describes the nature of the five factors as follows.

“There are several types of facts which, if alleged, might give rise to an inference that Coated Sales [stock] traded in an efficient market. It is useful to set forth an explanation of how the existence of such facts would cause the understanding that disclosed company information (or misinformation) would be reflected in the company’s stock price, the underpinning of the fraud on the market theory. Peil, *supra*, 806 F.2d at 1160.”
Id. at 1285-86 (footnote omitted).

“First, plaintiffs could have alleged there existed an average weekly trading volume during the class period in excess of a certain number of shares. *Abell v. Potomac Ins. Co.*, 858 F.2d 1104, 1121 (5th Cir. 1988).”
Id. at 1286.

“Second, it would be persuasive to allege a significant number of securities analysts followed and reported on a company’s stock during the class period.”
Id.

“Third, it could be alleged the stock had numerous market makers.”
Id.

“Fourth, as discussed, it would be helpful to allege the company was entitled to file an S-3 Registration in connection with public offerings or, if ineligible, such ineligibility was only because of timing factors rather than because the minimum stock requirements set forth in the instructions to Form S-3 were not met.”
Id. at 1287-88.

“Finally, it would be helpful to a plaintiff seeking to allege an efficient market to allege empirical facts showing a cause and effect relationship between unexpected corporate events or financial releases and an immediate response in the stock price.”
Id.

“As previously noted, one of the most convincing ways to demonstrate efficiency would be to illustrate, over time, a cause and effect relationship between company disclosures and resulting movements in stock price.”
Id. at 1291.

2. The *Krogman* Factors

42. In addition to the five *Cammer* factors that indicate market efficiency, the Fifth Circuit Court of Appeals in *Unger v. Amedisys*, 401 F.3d 316 (5th Cir. 2005), and the district court in *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D. Tex. 2001), recognized that three additional factors are also indicative of market efficiency.

43. These additional factors, the *Krogman* factors, are: 1) the company's market capitalization; 2) the stock's float; and 3) the typical bid-ask spread.

44. Market capitalization is the total value of all outstanding shares. It equals the number of shares outstanding times the price per share. Logically, the larger a company's market capitalization, the more prominent and well known the company will be. Larger companies tend to attract more analyst and news media coverage, and gain the attention of greater numbers of investors, including large institutional investors. All of these characteristics, which accompany a large market capitalization, promote market efficiency.

45. The stock's float is the number of shares outstanding, less shares held by insiders and affiliated corporate entities. It is generally the number of shares available for trading by outside investors in the open market. Float is closely related to market capitalization, but it focuses on the shares available for trading rather than all outstanding shares. Stocks with large floats tend to trade more actively, attract more analyst and news media coverage, and garner the attention of greater numbers of investors, including large institutional investors. All of these characteristics, which occur when a company has a high float level, promote market efficiency.

46. The bid-ask spread is the difference between the price at which market makers are offering to buy a security and the price at which they are offering the security for sale. If a security is actively traded and information about the security is readily available, the bid-ask spread will tend to be narrow. A narrow bid-ask spread makes trading in the security less costly for investors,

and thereby tends to attract greater interest, greater coverage, and greater volume, which in turn are factors that promote market efficiency.

VI. EFFICIENCY OF THE MARKET FOR VALEANT STOCK

47. To assess whether the market for Valeant stock was efficient during the Class Period, I analyzed the market for and behavior of Valeant stock, focusing on the factors that are generally accepted to be indicative of market efficiency for a publicly-traded security.

48. I examined these factors over the entire Class Period, and also examined them over the three sub-intervals to verify that my findings hold throughout the Class Period.

A. *Cammer* Factors

1. Trading Volume

49. Throughout the Class Period, Valeant stock traded regularly and actively. On average, 3.8 million shares changed hands daily.¹² Valeant's stock trading data are presented in Exhibit-4.

50. In addition to average daily trading volume, another volume metric to consider in determining market efficiency is the percentage of outstanding shares that turn over each week. During the Class Period, the average weekly trading volume of Valeant stock was approximately 19.1 million shares, or 5.6% of all shares outstanding.¹³ This level of trading activity is well above

¹² Data obtained from CRSP. This trading volume level excludes trading volume on the Toronto Stock Exchange.

¹³ Estimated by averaging the daily ratio of trading volume to the number of shares outstanding, and multiplying by 5 (the number of trading days in a typical week). During Interval-1, the average weekly trading volume was 7.2 million shares, or 2.2% of shares outstanding during that time. During Interval-2, the average weekly trading volume was 14.8 million shares, or 4.4% of shares outstanding during that time. During Interval-3, the average weekly trading volume was 37.4 million shares, or 10.9% of shares outstanding during that time.

levels accepted by courts as being indicative of market efficiency for common stock.¹⁴ In the case of the common stock of Coated Sales, Inc., the *Cammer* court cited the conclusion of Alan R. Bromberg and Lewis D. Lowenfels that “weekly trading of 2% or more of the outstanding shares would justify a strong presumption that the market for the security is an efficient one; 1% would justify a substantial presumption.”¹⁵ The trading volume for Valeant stock during the Class Period was above the threshold for a strong presumption of market efficiency.

51. Both in terms of average daily trading volume and the percentage of outstanding shares traded weekly, the market for Valeant stock was active. Consistent with the *Cammer* opinion, economic theory, and empirical research, the active trading volume in Valeant stock is strong evidence of the efficiency of the market for Valeant stock over the course of the Class Period.

2. Analyst Coverage and Other Avenues of Information Dissemination

a. Analyst Coverage

52. Securities analysts disseminate and interpret information about the companies they cover. They conduct research and provide valuation opinions, helping market participants acquire relevant information and understand the implications of that information for valuation and investment decisions. Consequently, securities analysts facilitate the flow of information and the digestion of information within the marketplace. These functions promote market efficiency.

53. I obtained analyst reports on Valeant published during the Class Period by 27 different analyst firms: Aegis Capital, Barclays, BMO Capital, BTIG, Canaccord Genuity, Cantor

¹⁴ *Cammer*, 711 F. Supp. at 1286.

¹⁵ *Id.*, at 1293.

Fitzgerald, CIBC World Markets, CRT Capital, Deutsche Bank, Evercore ISI, Gordon Haskett, Guggenheim, Jefferies, JP Morgan, Ladenburg Thalmann, Lazard Capital, Moody's Analytics, Morgan Stanley, Paradigm Capital, Piper Jaffray, RBC Capital, Rodman & Renshaw, Scotiabank, Susquehanna, TD Securities, UBS, and Wells Fargo.¹⁶

54. Transcripts of Valeant's conference calls conducted during the Class Period reveal that at least two additional firms followed Valeant: Mizuho Securities and Stifel Nicolaus.

55. Consequently, analysts at 29 firms, at least, covered Valeant during the Class Period.

56. Coverage by 29 analysts, of which at least 27 published reports, in a period of three years and two months, is broad analyst coverage. Barber, et al., [1994] found that coverage by one or two analysts strengthened the presumption of efficiency for a publicly traded stock.¹⁷

57. Consistent with the *Cammer* opinion, financial economic principles, and published empirical research, the coverage of Valeant by professional securities analysts is evidence of the efficiency of the market for Valeant stock during the Class Period.

b. Institutional Ownership and Buy-Side Analysis

58. Thomson Eikon compiles and provides institutional ownership data derived from SEC Form 13-F filings. The data show the holdings of Valeant stock by major investment institutions as of the end of each quarter. Major institutions are defined as firms or individuals that exercise investment discretion over the assets of others in excess of \$100 million. Large investment

¹⁶ The complete list of analyst reports I obtained is presented in Exhibit-1.

¹⁷ "The Fraud-on-the-Market Theory and the Indicators of Common Stocks' Efficiency," by Brad M. Barber, Paul A. Griffin, and Baruch Lev, *The Journal of Corporation Law*, 1994, pp. 302 and 310-311.

firms often employ financial analysts who conduct their own research on the securities they buy. According to the SEC filings compiled and reported by Thomson Eikon, at least 1,337 major institutions owned Valeant stock during the Class Period.¹⁸ This fact further supports a finding that the market for Valeant stock was efficient during the Class Period.

c. News Coverage

59. The news media also facilitate the flow of information to the marketplace, thereby promoting market efficiency. In the case of Valeant, such coverage was extensive. A Factiva database search established that over 15,000 articles were published about the Company during the Class Period.¹⁹

60. The articles obtained from Factiva include published news articles and press releases. Information about Valeant also emerged throughout the Class Period in the form of SEC filings, conference calls, and Company presentations.

61. Therefore, during the Class Period, information about Valeant was readily available to market participants, provided by analysts, news media, and various other sources. This news and analyst coverage is further evidence of the efficiency of the market for Valeant stock.²⁰

¹⁸ According to the SEC filings compiled and reported by Thomson Eikon data, 1,337 unique institutions held Valeant stock on at least one of the following reporting dates: 31 March 2013, 30 June 2013, 30 September 2013, 31 December 2013, 31 March 2014, 30 June 2014, 30 September 2014, 31 December 2014, 31 March 2015, 30 June 2015, 30 September 2015, and 31 December 2015. There may have been additional institutions that held Valeant stock during the Class Period, though not on the quarterly reporting dates. Data compiled by Thomson Eikon from these same filings indicate that at least 740 institutions held shares of Valeant stock during Interval-1, at least 870 institutions held shares as during Interval-2, and at least 1,072 institutions held shares during Interval-3.

¹⁹ Based on a Factiva search for articles published during the Class Period where “Valeant Pharmaceuticals International Inc.” was the “Company” search field parameter, the language was “English,” and the sources were “All Sources.” There were at least 3,200, 6,000, and 6,600 articles published about the Company during Interval-1, Interval-2, and Interval-3, respectively.

²⁰ This factor was deemed particularly important in *Cheney v. CyberGuard Corp.*, 213 F.R.D. 484 (S.D. Fla. 2003).

3. Market Makers and Listing on the New York Stock Exchange

62. The number of market makers is one of the factors the *Cammer* court determined indicates market efficiency. Market makers are financial intermediaries who trade in a particular security, standing ready to buy and sell with individual investors, institutions, and other market makers. A large number of market makers implies that many market participants are trading that particular security, which generally results in a high degree of liquidity and lower transaction cost. With a large number of market makers, it is generally easy for investors to execute trades in a timely fashion and with reasonable transaction costs.

63. The subject company in the *Cammer* case, Coated Sales, Inc., was listed on the NASDAQ, an over-the-counter market consisting of multiple competing market makers, using electronic systems to make quotes and effect trades.

64. The *Cammer* court's understanding that the market-making infrastructure of a stock market is indicative of its efficiency, or lack thereof, makes the fact that Valeant stock traded on the NYSE during the Class Period highly relevant. The NYSE is one of the most renowned, most liquid, and most efficient forums for trading stocks in the world. Securities on the NYSE are traded under the supervision of a lead market maker or "Designated Market Maker" ("DMM"), formerly known as a specialist.²¹ DMMs are responsible for maintaining a fair and orderly market for each security to which they are assigned.²²

65. In fact, citing Bromberg and Lowenfels, the *Cammer* court explicitly acknowledged the importance of an NYSE listing and the implications of such a listing for market efficiency.

²¹ "Fact Sheet; Designated Market Makers," NYSE Euronext, 2012.

²² "Organization and Functioning of Securities Markets," by Frank Reilly and Keith Brown, in *Equity and Fixed Income CFA Program Curriculum*, vol. 5, Pearson Custom Publishing, 2008.

“We think that, at a minimum, there should be a presumption – probably conditional for class determination – that certain markets are developed and efficient for virtually all the securities traded there: the New York and American Stock Exchanges, the Chicago Board Options Exchange and the NASDAQ National Market System.”

Cammer, 711 F. Supp. at 1292 (quoting Bromberg & Lowenfels, *Securities Fraud and Commodities Fraud*, §8.6 (1988)).

66. At the time of the *Cammer* opinion the NYSE and NASDAQ were distinctly separate exchanges. NASDAQ market makers did not make markets for NYSE-listed securities. However, since that time, the stock markets have evolved, and beginning in April 2005, NASDAQ enabled trading in most NYSE-listed securities through its market making platform.²³ This NASDAQ market making activity is in addition to the principal market for listed securities on the NYSE.

67. According to Bloomberg, there were at least 217 market makers for Valeant stock during the Class Period, including well-known firms such as: Barclays Capital, Deutsche Bank, Goldman Sachs, JP Morgan, and UBS.²⁴

68. The facts that it traded on the NYSE and had a large number of market makers are strong evidence that Valeant stock traded in an efficient market throughout the Class Period. Valeant’s listing on the NYSE gave its stock access to a highly developed network of brokers, and its market was overseen by the NYSE DMM. These facts are compelling evidence of the efficiency of the market for Valeant stock.

²³ “Nasdaq to Enable Customers to Trade NYSE Stocks,” *Reuters*, March 28, 2005.

²⁴ Market maker data obtained from Bloomberg. At least 147, 127, and 152 firms made a market in Valeant common stock during Interval-1, Interval-2, and Interval-3, respectively.

4. S-3 Registration Eligibility

69. The *Cammer* court recognized that “it would be helpful to allege the Company was entitled to file an S-3 Registration Statement in connection with public offerings or, if ineligible, such ineligibility was only because of timing factors rather than because the minimum stock requirements set forth in the instructions to Form S-3 were not met. Again, it is the number of shares traded and value of shares outstanding that involve the facts which imply efficiency.”²⁵

70. A company is eligible for S-3 registration when, among other things, it has filed Exchange Act reports for a specified length of time and has outstanding float above a certain sizable value. At the time of the *Cammer* opinion, the conditions for S-3 registration were that a company had filed financial reports with the SEC for 36 months, and had outstanding float over \$150 million held by non-affiliates, or \$100 million of such float coupled with annual trading volume exceeding 3 million shares.²⁶

71. In 1992, the SEC amended its requirements for S-3 registration eligibility to 12 months of filings and at least \$75 million of float. Since 2007, the SEC has allowed companies with less than \$75 million of float to file an S-3 registration so long as the company has been filing financial reports for at least a year, has “a class of common equity securities listed and registered on a national securities exchange, and the issuers do not sell more than the equivalent of one-third of their public float in primary offerings over any period of 12 calendar months.”²⁷ Despite the

²⁵ *Cammer*, 711 F. Supp. at 1288 (emphasis added).

²⁶ For a discussion of the generally accepted definitions of shares outstanding and float, see “Float Adjustment Methodology,” *S&P Dow Jones Indices*, July 2012.

²⁷ “Revisions To The Eligibility Requirements For Primary Securities Offerings On Forms S-3 And F-3,” SEC Release No. 33-8878, 19 December 2007.

fact that the \$75 million requirement has been loosened, courts continue to focus on the \$75 million benchmark when analyzing this *Cammer* factor.²⁸

72. The *Cammer* court noted that S-3 registration eligibility is indicative of market efficiency because the filing requirement ensures that financial data are available to market participants, and the “public float” requirement indicates that many market participants would have examined the information.²⁹

“Proposed Form S-3 recognizes the applicability of the efficient market theory to the registration statement framework with respect to those registrants which usually provide high quality corporate reports, including Exchange Act reports, and whose corporate information is broadly disseminated, because such companies are widely followed by professional analysts and investors in the market place. Because of the foregoing observations made by the SEC, the existence of Form S-3 status is an important factor weighing in favor of a finding that a market is efficient.”
Cammer, 711 F. Supp. at 1284-85.

“The ‘public float’ aspect of the Form S-3 requirements ensures that enough investors have in fact read the previously filed document.”
Id. at 1285.

“Again, it is the number of shares traded and value of shares outstanding that involve the facts which imply efficiency.”
Id. at 1287.

a. Size of Float Requirement

73. Valeant satisfied both the original and revised size of float requirement for S-3 registration eligibility throughout the Class Period. Valeant’s average float during the Class Period

²⁸ See, e.g., *Vinh Nguyen v. Radient Pharm. Corp.*, 287 F.R.D. 563, 573 (C.D. Cal. 2012).

²⁹ *Cammer*, 711 F. Supp. at 1284-85.

of \$27.9 billion, far exceeding the level required for S-3 registration.³⁰ During the Class Period, float ranged between \$7.4 billion and \$58.0 billion, always exceeding the minimum requirement for S-3 registration by a wide margin.³¹

74. Consistent with the *Cammer* opinion, Valeant's satisfaction of the float requirement for S-3 registration eligibility is evidence of the efficiency of the market for Valeant stock during the Class Period.

b. Financial Filings

75. Valeant regularly filed financial reports with the SEC throughout the Class Period. However, toward the end of Class Period, Valeant delayed its FY 2015 Form 10-K financial filing. The delay was related to the issues raised in this litigation and was relatively brief. The Company cited the following reasons for the delay:

“Valeant Pharmaceuticals International, Inc. (NYSE: VRX) (TSX: VRX) ('Valeant' or the 'Company') today announced that based on the work of the Ad Hoc Committee of the Board of Directors appointed to review the Company's relationship with Philidor and related matters, as well as additional work and analysis by the Company, the Company has preliminarily identified certain sales to Philidor during 2014, prior to Valeant's entry into an option to acquire Philidor, that should have been recognized when product was dispensed to patients rather than on delivery to Philidor. ... The Company expects to delay filing its 2015 10-K pending completion of the review of related accounting matters by the Ad Hoc Committee, with the assistance of its independent advisors, and the Company's ongoing assessment of the impact on financial reporting and internal controls.”

“Valeant Ad Hoc Committee has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters,” *PR Newswire*, 22 February 2016, 10:09 PM.

³⁰ During Interval-1, Interval-2, and Interval-3, Valeant's stock float averaged \$19.8 billion, \$28.1 billion, and \$37.3 billion, respectively.

³¹ During Interval-1, Valeant's stock float ranged between \$12.7 billion and \$31.0 billion. During Interval-2, Valeant's float ranged between \$22.0 billion and \$42.3 billion. During Interval-3, Valeant's stock float ranged between \$7.4 billion and \$58.0 billion.

76. Despite meeting the minimum float requirement for S-3 registration, the Company was ineligible for S-3 registration as of 22 February 2016 through the end of the Class Period three weeks later on account of its delay in filing its FY 2015 Form 10-K. As noted above, this filing delay was related to the issues raised in this litigation.

77. Following the announcement of the Company's filing delay, 20 analyst firms published 79 reports between 22 February 2016 through the end of the Class Period. During this same period, there were more than 900 news articles published about the Company. Information about the Company was available to investors even after the Company delayed its filing, and major reported news was about the delay itself. To the extent that S-3 registration eligibility indicates Company characteristics associated with market efficiency, i.e. size and information availability, the Company possessed those particular characteristics throughout the Class Period, including during the brief period during which Valeant was ineligible to file an S-3 registration statement. As noted, despite the ineligibility due to the filing delay, Valeant nonetheless satisfied this *Cammer* factor because the ineligibility was due to timing alone.

78. Not only was Valiant eligible for S-3 registration throughout all but the last 3 weeks of the Class Period, but the Company did file an S-3 Registration Statement during the Class Period, on 10 June 2013.³²

B. *Krogman* Factors

79. In addition to evaluating market efficiency using the *Cammer* factors, I also examined Valeant stock and its market with respect to the three additional *Krogman* factors.

³² Valeant Pharmaceuticals International, Inc., Form S-3, filed 10 June 2013.

1. Market Capitalization

80. During the Class Period, the market capitalization of Valeant averaged \$44.2 billion,³³ putting Valeant in the 1st decile of U.S. companies by size – meaning that Valeant was larger than at least 90% of all other publicly-traded companies in the United States.³⁴

81. Consistent with the *Krogman* opinion, Valeant's sizeable market capitalization throughout the Class Period is further evidence of the efficiency of the market for Valeant stock.

2. Float

82. Valeant's float averaged \$27.9 billion during the Class Period.³⁵ While float excludes shares held by insiders and affiliated corporate entities,³⁶ Valeant's float was still larger than the total market capitalization of at least 90% of all other publicly-traded companies in the United States.³⁷ The size of Valeant's float satisfied the second *Krogman* factor for market efficiency.

³³ According to share price data obtained from CRSP and shares outstanding data obtained from Company SEC filings. During Interval-I, Valeant's float ranged between \$12.7 billion and \$31.0 billion. During Interval-2, Valeant's float ranged between \$22.0 billion and \$42.3 billion. During Interval-3, Valeant's stock float ranged between \$7.4 billion and \$58.0 billion.

³⁴ Using averaged month-end data from CRSP for 31 January 2013 through 29 February 2016, I grouped public companies into deciles, so that the 1st decile contains the largest 10% of all public companies listed on the NYSE, AMEX, NASDAQ, and ARCA while the 10th decile contains the smallest 10%.

³⁵ According to share price data obtained from CRSP and shares outstanding data obtained from Company SEC filings. During Interval-1, Interval-2, and Interval-3, Valeant's common stock float averaged \$19.8 billion, \$28.1 billion, and \$37.3 billion, respectively.

³⁶ I conservatively excluded from float the shares held by Ruane, Cunniff & Goldfarb (the "Sequoia Fund"), Pershing Square Capital Management, L.P., ValueAct Capital Management, and T. Rowe Price Associates, Inc in the calculation of float. Including these shares in float would increase the average public float during the Class Period to \$40.4 billion.

³⁷ This calculation is based upon averaged month-end data from CRSP for 31 January 2013 through 29 February 2016.

83. Float can also be analyzed as a percentage of total shares outstanding, as well as in absolute share and value terms. On average during the Class Period, there were 209.8 million shares in Valeant's float and 333.1 million shares outstanding, resulting in an average float of 63.0% of shares outstanding.³⁸

84. While the ratio of float to market capitalization indicates substantial insider ownership of Valeant stock, the sheer magnitude of the float, larger than the entire market capitalizations of most publicly traded companies was substantial enough to strongly support a conclusion of market efficiency.

3. Bid-Ask Spread

85. From CRSP, I obtained data on daily closing bid and ask quotes for Valeant stock during the Class Period.

86. I measured the percentage bid-ask spread as the difference between the bid and ask quotes, divided by the average of the bid and ask quotes, which is the standard way of measuring percentage bid-ask spreads in the finance literature.³⁹ Exhibit-4 presents Valeant stock bid-ask spread data.

³⁸ On average during Interval-1, there were 203.4 million shares in float and 322.9 million shares outstanding, resulting in an average float of 63.0% of shares outstanding. On average during Interval-2, there were 206.1 million shares in float and 335.4 million shares outstanding, resulting in an average float of 61.4% of shares outstanding. On average during Interval-3, there were 221.1 million shares in float and 343.0 million shares outstanding, resulting in an average float of 64.5% of shares outstanding. Excluding the shares held by the Sequoia Fund, Pershing Square Capital Management, L.P., ValueAct Capital Management, and T. Rowe Price Associates, Inc from the calculation, Valeant's average shares in float during the Class Period was 304.4 shares or 91.4% of shares outstanding.

³⁹ "Price Reversals, Bid-Ask Spreads, and Market Efficiency," by Allen B. Atkins and Edward A. Dyl, *Journal of Financial and Quantitative Analysis*, Vol. 25, No. 4, 1990, pp. 535-547.

87. The average bid-ask spread for Valeant stock over the course of the Class Period was 0.02%.⁴⁰ By comparison, the average of month-end bid-ask spreads over the course of the Class Period for all stocks in the CRSP database was 0.60%.⁴¹ Valeant stock's average bid-ask spread was substantially narrower than the mean level among all other CRSP stocks – which are the stocks traded on the NYSE, AMEX, NASDAQ, and ARCA.

88. In dollar terms, Valeant stock's bid-ask spread during the Class Period averaged \$0.03 per share.⁴² For all stocks in the CRSP database, the average bid-ask spread during the Class Period was \$0.12 per share.⁴³

89. The average bid-ask spread in the market for Valeant stock over the course of the Class Period was well below the typical bid-ask spreads exhibited by other publicly-traded stocks in the United States. Valeant's narrow bid-ask spread strongly supports a conclusion of market efficiency.

⁴⁰ During Interval-1, the average bid-ask spread for Valeant common stock was 0.02%. During Interval-2, the average bid-ask spread for Valeant common stock was 0.02%. During Interval-3, the average bid-ask spread for Valeant common stock was 0.04%.

⁴¹ This calculation is based upon averaged month-end data from CRSP for 31 January 2013 through 29 February 2016. The average month-end bid-ask spread for all stocks in the CRSP database was 0.60%, 0.55%, and 0.66%, during Interval-1, Interval-2, and Interval-3, respectively.

⁴² During Interval-1, the average bid-ask spread for Valeant common stock was \$0.02. During Interval-2, the average bid-ask spread for Valeant common stock was \$0.02. During Interval-3, the average bid-ask spread for Valeant common stock was \$0.06.

⁴³ This calculation is based upon averaged month-end data from CRSP for 31 January 2013 through 29 February 2016. The average month-end bid-ask spread for all stocks in the CRSP database was \$0.11, \$0.13, and \$0.14, during Interval-1, Interval-2, and Interval-3 respectively.

VII. EMPIRICAL DEMONSTRATION OF MARKET EFFICIENCY FOR VALEANT STOCK

90. The fifth *Cammer* factor is empirical evidence showing a cause-and-effect relationship between the dissemination of company-specific information and movement in the security price.⁴⁴ The *Cammer* court noted that a demonstration of a cause and effect relationship “would be helpful to a plaintiff seeking to allege an efficient market.”⁴⁵

91. While the *Cammer* court stated that the empirical factor is “helpful” and “convincing,” in *Waggoner v. Barclays PLC*, 875 F.3d 79 (2d Cir. 2017), the Second Circuit emphasized, consistent with financial principles and empirical findings, that the empirical factor is not necessary to establish market efficiency, especially when the other factors are satisfied by wide margins and circumstances are not unusual. For example, in *Waggoner v. Barclays PLC*, the Second Circuit stated that “a plaintiff seeking to demonstrate market efficiency need not always present direct evidence of price impact through event studies.”⁴⁶

92. Nonetheless, appropriately significant reactions to new valuation-relevant information do demonstrate market efficiency and are compelling evidence. Collective event tests that prove that the stock reacted to information flow would also empirically demonstrate the efficiency of the subject security.

93. I conducted two sets of empirical tests of the efficiency of the market for Valeant stock.

⁴⁴ *Cammer*, 711 F. Supp. at 1291.

⁴⁵ *Id.*, at 1287.

⁴⁶ *Id.*, at 97.

94. The first empirical test was a series of event studies that investigates whether Valeant stock reacted significantly to major news events during the Class Period. I focused the event studies on dates on which Valeant formally announced substantial acquisitions, and on dates on which Valeant issued a press release or filed an SEC filing discussing its relationship with Philidor.

95. The second type of empirical examination was a collective test that investigates whether Valeant stock exhibited market efficiency by moving more on a set of high information flow dates than on all other more ordinary days, which would prove that information reaches the market, that the market trades on that information, and the stock price reacts to the flow of information.

96. The events tested collectively were the Company's earnings or guidance announcements. This test addresses whether Valeant stock exhibited market efficiency by examining whether the stock observably responded to the increased flow of information that generally transpires on earnings or guidance announcement dates by moving more on these dates collectively as compared to all ordinary non- or lesser-news dates.

97. According to the finance literature, the flow of company-specific information is elevated on earnings or guidance announcement dates. More movement on days with more information would indicate a cause and effect relationship between information and movements in the Valeant stock price, which demonstrates informational market efficiency.

98. I conducted this collective event analysis using a Fisher's Exact Test. This statistical test determines whether the incidence of statistically significant security price movements is significantly more frequent on earnings or guidance announcement dates as compared to all other ordinary non- or lesser-news days in the Class Period. A significantly higher

incidence of statistically significant price movements on earnings or guidance announcement dates indicates that the security price reacts to information, which therefore indicates market efficiency.

I ran this test over the complete Class Period.

A. Event Study Test of Market Efficiency

99. Historically, the event study has been the paramount tool for testing market efficiency, as renowned financial economist and Nobel laureate Eugene Fama attested:

“The cleanest evidence on market-efficiency comes from event studies, especially event studies on daily returns. When an information event can be dated precisely and the event has a large effect on prices, the way one abstracts from expected returns to measure abnormal daily returns is a second-order consideration. As a result, event studies give a clear picture of the speed of adjustment of prices to information.”
“Efficient Capital Markets: II,” by Eugene Fama, *Journal of Finance*, 1991, p. 1607.

100. Event study analysis is one of the most commonly used analytic methodologies employed by finance researchers. Campbell, Lo, and MacKinlay [1997] present an excellent description and examples of the methodology and write about how it is generally accepted and widely used in academic research.⁴⁷ Crew, et al., [2017] write about how the methodology is generally accepted and widely used in forensic applications.⁴⁸

101. An event study measures how much a security price rises or falls in response to new, company-specific information. One component of an event study is statistical regression analysis that determines how much of a security price change is explained by market and sector

⁴⁷ Chapter 4 of *The Econometrics of Financial Markets*, by John Y. Campbell, Andrew W. Lo, and A. Craig MacKinlay, Princeton University Press, 1997.

⁴⁸ “Federal Securities Acts and Areas of Expert Analysis,” by Nicholas I. Crew, Marine A. Moore, and Kevin L. Gold, in Chapter 27 of the *Litigation Services Handbook: The Role of the Financial Expert*, 6th ed., edited by Roman L. Weil, Daniel G. Lentz, and Elizabeth A. Evans, John Wiley & Sons, Inc., 2017.

factors, rather than company-specific information, so that those influences can be statistically factored out. The portion of a security price change that cannot be attributable to market or sector factors is called the residual security price movement or “residual return.” The event study isolates the residual return and also tests whether the residual return can reasonably be explained as merely a random fluctuation.

102. If a security’s return over an event period is statistically significant, it indicates that the security price movement cannot be attributed to market factors, sector factors, or to random volatility, but rather was caused by new, company-specific information. Such proof of a cause and effect relationship between the release of information and movement in the security price demonstrates market efficiency.

1. A Caveat about Non-Significant Security Price Movements

103. It is important to note that an event study tests the joint hypothesis that the security trades in an efficient market and that the valuation impact of the information disseminated on an event date is of such a large magnitude as to exceed the threshold for statistical significance. A finding of statistical significance indicates market efficiency, but a finding of non-significance does not necessarily establish inefficiency because a modest non-significant stock price reaction may be the accurate and efficient stock price reaction to a particular disclosure.⁴⁹

104. For example, if a company reports earnings that are in line with the expectations of analysts and investors, even though the announcement would be important, the mix of information may not have changed sufficiently on that date to elicit a statistically significant security price reaction. Similarly, if a materially positive statement is made alongside countervailing

⁴⁹ “Event Studies in Securities Litigation: Low Power, Confounding Effects, And Bias,” by Alon Brav and J.B. Heaton, *Washington University Law Review*, 30 March 2015, p. 602.

confounding news that impacts the stock price in the opposite direction, one might not reasonably expect this mix of new information to cause a statistically significant stock price reaction. In these examples, a modest stock price movement, or even no movement at all, may be the appropriate stock price reaction. In such cases, the event study finding that the stock return was non-significant would not indicate inefficiency. In fact, in such cases, a non-significant stock price movement would indicate that the stock is behaving as it should in an efficient market.

105. Similarly, when a company deceives analysts and investors by concealing important information, the effect of the concealment would generally not be a significant stock price movement at the time of the concealment and over its duration. The concealment would maintain the mix of information as it previously was, so the appropriate price reaction, all else being equal, would be a maintenance of the price level where it previously was.

106. Therefore, ideal candidate events for inclusion in a market efficiency event study are events on which company-specific information was released that is new, unexpected, not confounded by major countervailing news, and may potentially be of such import as to reasonably be expected to elicit a stock price reaction over the threshold for statistical significance. As important events of interest may not possess all of these ideal characteristics, not every event selected for a traditional event study will prove to be statistically significant in an efficient market.

107. Furthermore, in a collective test, where the events are screened based on information flow rather than on the basis of being major valuation-relevant events, far from all of the events may be statistically significant in an efficient market. The threshold indicating market efficiency in a collective test is a significantly greater frequency of statistically significant events (or significantly different price dynamics), not that all individual events within the group are statistically significant.

2. Event Selection

a. Selection of Acquisition Announcement Events

108. Given that a “critical element” of the Company’s strategy was growth through acquisition, announcements of large acquisitions could be expected to observably impact the value of the Company.⁵⁰ It follows that on certain dates when the Company announced an acquisition, the value of Valeant would be expected to move.

109. However, not all acquisition announcements would be expected to elicit a statistically significance price reaction, as certain acquisition announcements may have been anticipated and/or the incremental valuation impact might not have been large enough to exceed the threshold for statistical significance. Considering that Valeant’s market capitalization averaged \$44.2 billion during the Class Period, the valuation impact of any particular acquisition would have to be very substantial in order to be expected to elicit a statistically significant stock price reaction. That is, although an acquisition might be economically significant to the Company, the valuation impact of the acquisition may not be over the threshold for statistical significance, unless the deal were very large and unexpected, and the terms were profoundly favorable or unfavorable.

110. I reviewed the Company’s press releases during the Class Period to identify all formal acquisition proposals announced by Valeant and screened for the acquisitions that were above five percent of the Company’s market capitalization at the time of the announcement. I reviewed analyst reports to verify that these particular events were major events that reasonably would have significant impact on the Company’s stock valuation.

⁵⁰ Valeant Pharmaceuticals International, Inc., Form 10-K for fiscal year ended 31 December 2015, filed 29 April 2016 p. 1.

111. Using the criteria described above, I identified three acquisition announcements during the Class Period that would reasonably be expected to elicit a statistically significant price reaction, and so were good candidate events for a market efficiency event study. The three event dates are: 28 May 2013; 22 April 2014; and 23 February 2015.

112. The news on these three acquisition announcement event dates during the Class Period included the following information:

- i. **28 May 2013** – the Company issued a press release titled “Valeant Pharmaceuticals International, Inc. To Acquire Bausch + Lomb for \$8.7 Billion.”⁵¹
- ii. **22 April 2014** – the Company issued a press released titled “Valeant Proposes to Combine with Allergan for \$48.30 in Cash and 0.83 Shares of Valeant Stock for Each Allergan Share,”⁵² and held a conference call with investors.⁵³
- iii. **23 February 2015** – on 22 February 2015, after the close of trading, the Company issued a press release title “Valeant To Acquire Salix Pharmaceuticals For \$158.00 Per Share in Cash.”⁵⁴

b. Selection of Philidor Disclosure Events

113. Not only did the *Cammer* court single out the empirical factor as “one of the most convincing ways to demonstrate efficiency,” but it also recognized the special importance of the specific information allegedly misrepresented that is the subject of the litigation:

⁵¹ “Valeant Pharmaceuticals International, Inc. To Acquire Bausch + Lomb For \$8.7 Billion,” *PR Newswire*, Company press release, 27 May 2013.

⁵² “Valeant Proposes to Combine with Allergan for \$48.30 in Cash and 0.83 Shares of Valeant Stock for Each Allergan Share,” *Canada NewsWire*, Company press release, 22 April 2014.

⁵³ “Valeant Pharmaceuticals International, Inc. Conference Call to Discuss the Proposed Acquisition of Allergan,” *Thomson Reuters*, 22 April 2014.

⁵⁴ “Valeant To Acquire Salix Pharmaceuticals For \$158.00 Per Share in Cash,” *Canada NewsWire*, Company press release, 22 February 2015, 4:00 PM.

“The central question under the fraud on the market theory is whether the stock price, *at the time a plaintiff effected a trade*, reflected the ‘misinformation’ alleged to have been disseminated.”
Cammer, 711 F. Supp. at 1282 (emphasis in original).

114. By focusing an event study on information events related to the allegations in the Complaint, one is able to ascertain whether the market for Valeant stock was efficient, not only generally, but also specifically with respect to the particular information at issue in this case. Consequently, the empirical behavior of Valeant stock following such information events is important for determining whether the market for the Company’s stock was efficient for purposes of the fraud-on-the-market principle.

115. An event study testing market efficiency does not require a comprehensive identification of all events during the Class Period, including all of those cited in the Complaint, on which new allegation-related information was disclosed. An objective screen may capture only some of those events. Further, because of the high threshold for statistical significance, some information may be economically significant without being statistically significant.

116. To identify additional potential event dates, I reviewed Valeant’s press releases and SEC filings during the Class Period to identify major news events on which the Company discussed its relationship with Philidor. There were seven such event dates during the Class Period: 19 October 2015; 26 October 2015; 30 October 2015; 10 November 2015; 23 February 2016; 29 February 2016; and 15 March 2016. The news on these dates included the following information:

- iv. **19 October 2015** – the Company issued a press release detailing its Q3 2015 financial results and held a conference call with investors.⁵⁵ In its prepared conference call comments, the Company preemptively provided responses to potential Philidor questions.⁵⁶
- v. **26 October 2015** – the Company filed its Form 10-Q for Q3 2015 and held a conference call with investors.⁵⁷ On the conference call with investors Valeant provided additional details regarding its relationship with Philidor, including the Company’s purchase option for Philidor, and the accounting and disclosure policies for Philidor.⁵⁸ In its Form 10-Q, the Company disclosed that it had the “power to direct Philidor’s activities and its obligation to absorb their losses and rights to receive their benefits.”⁵⁹
- vi. **30 October 2015** – the Company issued a press release titled “Valeant To Terminate Relationship With Philidor.”⁶⁰ In its press release, Valeant stated that it was “severing all ties with Philidor Rx Services, LLC, and that Philidor has informed Valeant that it will shut down operations as soon as possible, consistent with applicable laws.”⁶¹

⁵⁵ “Valeant Pharmaceuticals Reports Third Quarter 2015 Financial Results,” *PR Newswire*, 19 October 2015, 6:00 AM; “Q3 2015 Valeant Pharmaceuticals International Inc Earnings Call,” *Thomson Reuters*, 19 October 2015 8:00 AM GMT.

⁵⁶ “Valeant Pharmaceuticals International, Inc. Q3 2015 Financial Results,” Investor Presentation, dated 19 October 2015; “Q3 2015 Valeant Pharmaceuticals International Inc Earnings Call,” *Thomson Reuters*, 19 October 2015, 8:00 AM GMT.

⁵⁷ Valeant Pharmaceuticals International, Inc., Form 10-Q for the Quarter Ended 30 September 2015, filed 26 October 2015; “Valeant Pharmaceuticals International Inc To Hold Investor Conference Call,” *Thomson Reuters*, 26 October 2015, 8:00 AM GMT.

⁵⁸ “Valeant Pharmaceuticals International, Inc. Q3 2015 Financial Results,” Investor Presentation, dated 26 October 2015.

⁵⁹ Valeant Pharmaceuticals International, Inc., Form 10-Q for the Quarter Ended 30 September 2015, filed 26 October 2015, p. 13.

⁶⁰ “Valeant To Terminate Relationship With Philidor,” Company press release, *Dow Jones Newswire*, 30 October 2015, 5:00 AM.

⁶¹ *Id.*

- vii. **10 November 2015** – Valeant held a conference call to update investors on its “strategy with respect to specialty pharmacies, to explain our transition plans for Philidor, to discuss our business performance for the first half of the quarter,” and take questions from analysts and investors.⁶²
- viii. **23 February 2016** – on 22 February 2016, after the close of trading, the Company issued a press release titled “Ad Hoc Committee has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters.”⁶³ The Company also disclosed that “approximately \$58 million in net revenues previously recognized in 2014 should have been booked in subsequent periods.”⁶⁴ The Company announced a conference call on 29 February 2016 to “discuss unaudited financial results for the fourth quarter of 2015, and provide a business update.”⁶⁵
- ix. **29 February 2016** – on 28 February 2016 (Sunday), Valeant issued a press release titled “Valeant Pharmaceuticals Announces Management and Business Update.”⁶⁶ The press release announced that the Company “will be rescheduling its previously announced call to discuss preliminary fourth quarter 2015 results, deliver a business review, and provide updated guidance for 2016. In the interim, the Company is withdrawing its prior financial guidance.”⁶⁷
- x. **15 March 2016** – the Company issued a press release titled “Valeant Pharmaceuticals Reports Preliminary Unaudited Fourth Quarter 2015 Financial

⁶² “Valeant Pharmaceuticals International Inc Conference Call to Provide Business Update,” *Thomson Reuters*, 10 November 2015, 8:00 AM GMT, p. 3.

⁶³ “Valeant Ad Hoc Committee has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters,” *PR Newswire*, Company press release, 22 February 2016, 10:09 PM.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ “Valeant Pharmaceuticals Announces Management and Business Update,” *PR Newswire*, Company press release, 28 February 2016, 7:27 PM.

⁶⁷ *Id.*

Information.”⁶⁸ The Company was unable to file audited financial results due to the ongoing investigation into its relationship with Philidor. The Company provided Q1 and FY 2016 guidance.⁶⁹

3. Isolating the Impact of Company-Specific Information

117. Event study analysis determines how much of the Company’s stock return following each of the events was driven by Company-specific information as opposed to market and sector factors.

118. The method, which is generally accepted and widely used in econometric modeling, involves running a regression to determine how the price of Valeant stock typically behaved in relation to the overall stock market and its industry sector, and then using the regression model to determine how much of each event day’s actual return is explained by the market and sector factors. The portion of the stock return that is apportioned to market and sector factors is called the explained return.

119. The explained return is then subtracted from the actual return to isolate the residual return, which is the stock’s return after controlling for market and sector effects.

120. The regression equation models the return of Valeant stock as a function of: 1) a constant term; 2) the returns of the overall stock market; and 3) a sector index return.

121. For the overall stock market factor, I used the CRSP NYSE/AMEX/NASDAQ/ARCA Market Index (the “Market Index”), which is a generally accepted and widely used measure of the overall stock market performance. The Market Index appropriately incorporates payment of dividends by the constituent companies.

⁶⁸ “Valeant Pharmaceuticals Reports Preliminary Unaudited Fourth Quarter 2015 Financial Information,” *PR Newswire*, Company press release, 15 March 2016.

⁶⁹ *Id.*

122. For the sector factor, I constructed a value-weighted index comprising the same collection of companies that Valeant identified as representative of its peers (the “Sector Index”). In its 2012, 2013, 2014, 2015, and 2016 Form 10-K filings, Valeant compared itself to 8 companies,⁷⁰ 8 companies,⁷¹ 13 companies,⁷² 12 companies,⁷³ and 12 companies,⁷⁴ respectively. The Sector Index was constructed using the same collection of companies identified by Valeant. In each year, the Sector Index’s constituents match those identified by the Company for that respective year.

123. All returns used in the regression are logarithmic returns – that is, the natural logarithm of the ratio of the current day’s closing price plus dividends to the previous day’s closing price. Logarithmic returns are commonly used in event studies and equity analysis. Analysts and

⁷⁰ For the fiscal year ended 31 December 2012 Valeant compared its performance to Allergan, Endo Pharmaceuticals Holdings Inc., Forest Laboratories, Inc., Gilead Sciences, Inc., Mylan Inc., Perrigo Company, Shire Pharmaceuticals Group plc, and Watson Pharmaceuticals, Inc. (Valeant Pharmaceuticals International, Inc., Form 10-K for the Fiscal Year Ended 31 December 2012, filed 28 February 2013, p. 23).

⁷¹ For the fiscal year ended 31 December 2013 Valeant compared its performance to Actavis Inc, Allergan, Endo Health Solutions, Forest Laboratories, Gilead Sciences Inc., Shire plc, Mylan Inc., and Perrigo Co. (Valeant Pharmaceuticals International, Inc., Form 10-K for the Fiscal Year Ended 31 December 2013, filed 28 February 2014, p. 24).

⁷² For fiscal year ended 31 December 2014 Valeant compared its performance to Actavis Inc, Allergan, Amgen, Biogen, Bristol Myers Squibb & Co., Celgene, Danaher Corporation, Gilead Sciences Inc., Lilly (Eli) & Co., Shire plc, Mylan Inc., Perrigo Co., and Vertex Pharmaceuticals Inc. (Valeant Pharmaceuticals International, Inc., Form 10-K for the Fiscal Year Ended 31 December 2014, filed 25 February 2015, p. 24).

⁷³ For the fiscal year ended 31 December 2015 Valeant compared its performance to Allergan, Amgen, Biogen, Bristol Myers Squibb & Co., Celgene, Danaher Corporation, Gilead Sciences Inc., Lilly (Eli) & Co., Shire plc, Mylan Inc., Perrigo Co., and Vertex Pharmaceuticals Inc. (Valeant Pharmaceuticals International, Inc., Form 10-K for the Fiscal Year Ended 31 December 2015, filed 29 April 2016, p. 35).

⁷⁴ For the fiscal year ended 31 December 2016 Valeant compared its performance to Allergan, Amgen, Biogen, Bristol Myers Squibb & Co., Celgene, Danaher Corporation, Gilead Sciences Inc., Lilly (Eli) & Co., Shire plc, Mylan Inc., Perrigo Co., and Vertex Pharmaceuticals Inc. (Valeant Pharmaceuticals International, Inc., Form 10-K for the Fiscal Year Ended 31 December 2016, filed 1 March 2017, p. 37).

researchers generally use logarithmic returns instead of percent price changes because of various computational advantages.⁷⁵

124. Valeant's stock prices, trading volume, and returns are shown in Exhibit-4. Exhibit-5 presents Market Index and Sector Index data.

125. Due to the length of the Class Period, and the Company's growth, I ran rolling regressions. That is, I ran a separate regression for each event on data from the year prior to each respective event (approximately 252 trading days). This way the regression estimates are contemporaneous with the events being tested. I used dummy (or indicator) variables to control for potentially abnormal returns on all test dates (earnings or guidance announcement events, Philidor-related announcement events, and acquisition announcement events). Using dummy (indicator) variables to control for potentially unusual events in the estimation period, especially when those dates are the subject of the event study analysis, so that the model parameters properly reflect typical stock price movements, is a widely used and generally accepted methodology, as noted in the academic and finance literature.⁷⁶

126. The choice of using the one-year period preceding each event date for the regression estimation period is also a widely used and generally accepted methodology in event study analysis.

⁷⁵ Appendix-1 presents the mathematical formula for the logarithmic return and a discussion of the measure.

⁷⁶ See: "Event Studies with a Contaminated Estimation Period," by Nihat Aktas, Eric de Bodt, and Jean-Gabriel Cousin, *Journal of Corporate Finance*, 2007; "Measuring the Effects of Regulation with Stock Price Data," by John J. Binder, *The RAND Journal of Economics*, 1985; "Intervention Analysis with Applications to Economic and Environmental Problems," by G. E. P. Box and G. C. Tiao, *Journal of the American Statistical Association*, 1975; "Testing for Market Efficiency: A Comparison of the Cumulative Average Residual Methodology and Intervention Analysis," by David F. Larcker, Lawrence A. Gordon and George E. Pinches, *Journal of Financial & Quantitative Analysis*, 1980; "Measuring Abnormal Performance: The Event Parameter Approach Using Joint Generalized Least Squares," by Paul H. Malatesta, *The Journal of Financial and Quantitative Analysis*, 1986; "Conditioning the Return-Generating Process on Firm-Specific Events: A Discussion of Event Study Methods," by Rex Thompson, *The Journal of Financial and Quantitative Analysis*, 1985.

“Three general choices for the placement of an estimation window are before the event window, surrounding the event window, and after the event window.”

“Materiality and Magnitude: Event Studies in the Courtroom,” by David I. Tabak and Frederick C. Dunbar in *Litigation Services Handbook, The Role of the Financial Expert*, 3rd ed., edited by Roman L. Weil, Michael J. Wagner, and Peter B. Frank, John Wiley & Sons, Inc., 2001, p. 19.5.

127. The regression results are presented in Exhibit-6.

128. I computed the explained portion of the Valeant stock return on each event date by adding: 1) the estimated regression intercept term, 2) the respective day’s Market Index return multiplied by the Market Index coefficient estimated by the regression, and 3) the respective day’s Sector Index return multiplied by the regression’s Sector Index coefficient.

129. I then computed the residual return for each event date by subtracting the explained return from the actual return.

4. *t*-Test

130. For each event, a statistical test called a *t*-test was conducted to determine whether the residual return of Valeant stock was statistically significant. Statistical significance means that the event return, after controlling for the market and sector effects, was of such magnitude that it cannot be attributed to random volatility, but alternatively must have been caused by Company-specific information. A *t*-test compares the residual return on an event date to the typical residual return exhibited over the regression estimation period. If the event date residual return is far greater (positively or negatively) than the typical residual return, the *t*-test indicates that the residual return is statistically significant.⁷⁷

⁷⁷ The test is called the *t*-test because it involves the computation of a *t*-statistic, which is the event day residual return divided by the standard deviation of residual returns from the control period, i.e., the regression estimation data comprising all other days. If the absolute value of the *t*-statistic is greater than the critical *t*-statistic value (1.96 for large samples), the likelihood that the residual return could have been caused by random volatility alone is less than

131. The event study results for Valeant stock are presented below and summarized in Exhibit-7a and Exhibit-7b.

B. Acquisition Announcement Event Study Results

1. Acquisition Announcement Event Study: 28 May 2013

132. On 27 May 2013 (Sunday), the Company issued a press release stating that it had entered into a definitive agreement under which it would acquire Bausch and Lomb for \$8.7 billion in an all-cash deal.⁷⁸ While unconfirmed reports of the acquisition leaked on 24 May 2013,⁷⁹ the Company's formal announcement and confirmation including proposed terms occurred on 27 May 2013. The Company also held a conference call that day to "discuss its definitive agreement to acquire Bausch + Lomb Holdings."⁸⁰

133. Analysts commented that Bausch and Lomb would be a good strategic fit, has a strong growth profile, and would lead to significant accretion.

"We value the combination of Valeant and B+L based on expected 43.5% accretion to our 2014E cash EPS. By applying (pre-B+L speculation) P/cash EPS (~11.5x) and EV/EBITDA (13.2x) multiples to our accretion analysis, we arrive at a 12-month target of US\$112.00 (increased from US\$82.00), which implies a 32.6% return and supports our BUY rating."
"Valeant Reels in A Big One," by Neil Maruoka and Shilpa Joshi, *Canaccord*, analyst report, 27 May 2013, p. 1.

5%, which is generally accepted to be so unlikely that the random volatility explanation can be rejected, and the security return for that day is deemed statistically significant.

⁷⁸ "Valeant Pharmaceuticals International, Inc. To Acquire Bausch + Lomb for \$8.7 Billion," *Dow Jones*, Company press release, 27 May 2013.

⁷⁹ "Bausch & Lomb Said to Be Near \$9 Billion Sale to Valeant," by Michael J. De La Merced, *The New York Times*, 24 May 2013.

⁸⁰ "Valeant Pharmaceuticals International, Inc. Conference Call to Discuss its Definitive Agreement to Acquire Bausch + Lomb Holdings," *Thomson Reuters*, 28 May 2013, 8:00 AM GMT.

“We are adding B&L contribution to our model starting in 4Q13 (expected close in 3Q13) and now project 2013-15 revenue and EPS of \$5.28B and \$5.86, \$8.31B and \$8.58, \$8.85B and \$10.32 vs \$4.47B and \$5.70, \$4.81B and \$6.45, and \$5.12B and \$7.20, respectively (see details for accretion analysis). Our \$103 PT is 12x our new 2014E cash EPS of \$8.58 (see details).”

“Post B&L Conf Call, Raising PT to \$103 (vs \$82),” by David Steinberg and Edward Chung, Deutsche Bank, analyst report, 27 May 2013, p. 1.

“Thoughts on the stock: Stay long VRX Investors understand how sig a deal this would be for Valeant given the 13% stk move on Friday as the story of a potential deal hit the news wires. The deal makes sense, the synergies are sig and we think there is more to go for this stk as mgt continues to execute on running the base biz and finding and integrating new deals. Valuation: We maintain our Buy rating and incr. our PT to \$96 (was \$81).”

“Who Says There Is Nothing Left to Buy?” by Marc Goodman, et al., UBS, analyst report, 28 May 2013, p. 1.

“Making the Friday speculations come true, Valeant has formally announced its acquisition of Bausch & Lomb (private) for \$8.7B in cash. Valeant's guidance is >40% accretive to 2013 with >\$800M in synergies expected by the end of 2014. We also expect it to take the tax rate from 32% to <5% shortly after a Q3 close. We find this an extraordinary deal and continue to see upside from here.”

“Bausch & Lomb: Just Another ‘Tuck-In’,” by Core Davis, et al., Jefferies, analyst report, 28 May 2013, p. 1.

“[W]e are raising our EPS estimates in 2014-2016 to reflect the Bausch acquisition and raising our target to \$120. This reflects a 10.3x multiple off our new 2015 EPS of \$11.64. We now see a 31% EPS CAGR through 2016. VRX once again becomes one of our top picks. We find the deal extremely attractive and expect the stock to trade well -- especially after the planned \$1.5-\$2.0B equity offering.”

“New Model: \$12 in '15; Raise PT to \$120,” by Core Davis, et al., Jefferies, analyst report, 28 May 2013, p. 1.

“We think VRX's acquisition of BOL makes sense and the financial parameters seem better than expected. We look for details on synergy and growth targets but expect a favorable reaction and reiterate our Positive rating, increasing our target to \$105/share.”

“Valeant Pharmaceuticals International, Inc.: Bausch & Lomb Deal Targets More Accretion Than Expected,” by Andrew Finkelstein, SIG, analyst report, 28 May 2013, p. 1.

“In the wake of this transaction, which Valeant has indicated is expected to be immediately accretive to earnings, we have raised our 2013 cash EPS estimate from \$5.65 to \$7.38. Total revenue for 2013 is guided to be \$7.1bn and adjusted cash flow from operations roughly \$2bn. In the wake of this news, we maintain our Buy rating and raise our 12-month price target from \$80.00 to \$110.00 per share.”

“Bausch & Lomb Acquisition - Raising Price Target,” by Raghuram Selvaraju and Yi Chen, Aegis Capital Corp., analyst report, 28 May 2013, p. 1.

134. On 28 May 2013, Valeant stock increased 8.32% (on a logarithmic return basis). The residual return on Valeant stock was 7.43%. A residual return of 7.43% is unusually large for Valeant stock. This residual return is associated with a *t*-statistic value of 4.28, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

2. Acquisition Announcement Event Study: 22 April 2014

135. On 22 April 2014, the Company issued a press release titled “Valeant proposes to combine with Allergan for \$48.30 in cash and 0.83 shares of Valeant stock for each Allergan share.”⁸¹ The Company also held a conference call to “discuss the proposed acquisition of Allergan.”⁸² The proposed transactions valued the Allergan acquisition at \$45.6 billion.⁸³

136. The deal’s prospects were viewed positively as Allergan was considered a good strategic fit for Valeant.

“We see excellent strategic fit in a combination, with complementary dermatology and ophthalmology franchises. Accretion is likely modest. While there is tremendous opportunity for cost savings (we project \$1.85

⁸¹ “Valeant Proposes to Combine with Allergan for \$48.30 in Cash and 0.83 Shares of Valeant Stock for Each Allergan Share,” *Canada NewsWire*, Company press release, 22 April 2014.

⁸² “Valeant Pharmaceuticals International, Inc. Conference Call to Discuss the Proposed Acquisition of Allergan,” *Thomson Reuters*, 22 April 2014.

⁸³ “Valeant, Ackman Make \$45.6B Allergan Bid,” *Associated Press*, 22 April 2014.

billion), we expect that higher resultant debt levels will partially offset these synergies, suggesting modest accretion of 10.9%.”

“Placing Allergan in its Sights,” by Neil Maruoka and Shilpa Joshi, Canaccord, analyst report, 22 April 2014, p. 1.

“The deal makes clear strategic sense for Valeant as it would establish dominance in the growing aesthetics and eye care market. Based on consensus estimates, Allergan’s revenues are expected to grow by a CAGR of 8.3% from 2013 to 2017. If this deal goes through, Valeant will most likely need to divest some assets, but they will have the option of keeping the market leaders from Allergan. Based on our scenario analysis, we estimate that the deal could produce roughly \$1.5B-\$2.6B in total annual synergies (including tax savings) and \$0.8B-\$1.7B in operating (R&D + SG&A) synergies.”

“Another Bold Move: VRX Will Likely Offer ~\$50B for AGN; Could Be 8%-17% Accretive,” by Alex Arfaei, BMO, analyst report, 22 April 2014, p. 1.

“We see a strong fit between Valeant and Allergan’s Aesthetics and Ophthalmics (Eye drug) franchises. In Ophthalmics, Allergan would contribute a leading presence in Glaucoma and Dry eye — two critical Rx segments where Valeant has insignificant offerings. Valeant would contribute a solid presence at the OTC end of the eye drug market. The combined franchise would likely dominate the Ophthalmics market. The new company could also be a world leader in Aesthetics — a high-priority target and a high-growth performer for VRX.”

“Valeant Joins Pershing To Target Allergan,” by Lennox Gibbs, TD Securities, analyst report, 23 April 2014, p. 1.

137. On 22 April 2014, Valeant stock increased 7.19% (on a logarithmic return basis).

The residual return on Valeant stock was 4.65%. A residual return of 4.65% is unusually large for Valeant stock. This residual return is associated with a *t*-statistic value of 2.96, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

3. Acquisition Announcement Event Study: 23 February 2015

138. On 22 February 2015 (Sunday) the Company issued a press release titled “Valeant To Acquire Salix Pharmaceuticals For \$158.00 Per Share In Cash.”⁸⁴ The deal valued Salix at \$14.5 billion.⁸⁵ That day, Valeant also reported Q4 and FY 2014 financial results.⁸⁶

139. Contemporaneous market commentary considered the Salix acquisition a positive development for the Company.

“We see the key benefits of the transaction as: 1) a new product class (GI will be 24% of revenue post acquisition); 2) cost synergies (\$500 mln in run rate savings in the first six months; 20%+ accretive in 2016); 3) potential upside from FDA approval for Xifaxan's IBS-D offering (which we estimate could double Xifaxan's annual sales) and other near-term pipeline drugs.”
“Entering The GI Market - Announces Salix Acquisition,” by Stephanie Price and Varun Choyah, CIBC, analyst report, 23 February 2015, p. 1.

“The 4Q14 beat and announcement of the SLXP deal (NC, \$157.85) keep us positive on VRX shares. Therefore, we are increasing our PT for VRX's stock from \$178 to \$210.”
“VRX - BUY - Raising PT From \$178 to \$210 Post 4Q14 Beat and SLXP Deal,” by Louise Chen, et al., Guggenheim, analyst report, 23 February 2015, p. 1.

140. On 23 February 2015, Valeant stock increased 13.73% (on a logarithmic return basis). The residual return on Valeant stock was 13.72%. A residual return of 13.72% is unusually larger for Valeant stock. This residual return is associated with a *t*-statistic value of 9.38, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

⁸⁴ “Valeant To Acquire Salix Pharmaceuticals For \$158.00 Per Share in Cash,” *Canada NewsWire*, Company press release, 22 February 2015, 4:00 PM.

⁸⁵ *Id.*

⁸⁶ “VRX Valeant Pharmaceuticals earns \$912.2-million in 2014,” *Canada Stockwatch*, 23 February 2015.

4. Summary of Acquisition Announcement Event Study Results

141. Valeant stock exhibited strongly statistically significant stock price reactions following all three of the major acquisition announcements.

C. Philidor Disclosure Event Study Results

1. Philidor Disclosure Event Study: 19 October 2015

142. On 19 October 2015, the Company issued a press release detailing its Q3 2015 financial results and held a conference call with investors.⁸⁷ In the presentation slide deck accompanying the earnings conference call, Valeant provided a slide titled “Questions from Investors,” which included the following question: “How does Valeant work with specialty pharmacies and what is Valeant’s relationship with Philidor?”⁸⁸ In the slides addressing this question, the Company characterized “their relationship with Philidor and our other specialty pharmacies as proprietary and as one of our competitive advantages.”⁸⁹

143. In his prepared comments during the conference call, the Company’s CEO Michael Pearson elaborated further:

“[Michael Pearson, Chairman and CEO]: The topic of specialty pharmacies has not been a focus of ours on past calls because we believe this was a competitive advantage that we did not want to disclose to our competitors. But given all the incorrect assertions by some, we will provide an update on this call. Similar to many pharmaceutical companies in the US, an increasing percentage of our revenue is coming from products dispensed through multiple specialty pharmacies. We find specialty pharmacies improve patients’ access to medicines at an affordable price, and help ensure physicians are able to prescribe the medications they believe most

⁸⁷ “Valeant Pharmaceuticals Reports Third Quarter 2015 Financial Results,” *PR Newswire*, 19 October 2015, 6:00 AM; “Q3 2015 Valeant Pharmaceuticals International Inc Earnings Call,” *Thomson Reuters*, 19 October 2015 8:00 AM GMT.

⁸⁸ “Valeant Pharmaceuticals International, Inc.; Q3 2015 Financial Results; October 19, 2015,” Company presentation, 19 October 2015, p. 19.

⁸⁹ *Id.*, p. 34.

appropriate for their patients. In almost all cases, our inventory with specialty pharmacies in this channel and the title to our medicine only transfers to the pharmacy when the actual prescription is filled.

...

Since we do not recognize the revenue of our products until the prescriptions are filled, this consolidation has the impact of delaying revenue recognition as compared to products that are sold through traditional distribution channels.”

“Q3 2015 Valeant Pharmaceuticals International Inc. Earnings Call,” *Thomson Reuters*, Company conference call, 19 October 2015, 8:00 AM, pp. 7-8.

144. Contemporaneous media commentary discussed Valeant’s relationship with Philidor.

“Then on Monday during a quarterly conference call with analysts its executive outlined certain key changes to its business model and disclosed its relationship to one of these third-party pharmacies that distributes some of its key drugs. ... Most Wall Street analysts were nonplussed by Valeant's disclosures, and several analysts admitted that they knew almost nothing specifically about Philidor or Valeant's exact relationship with the company before Monday.”

“Pricing Concerns Continue To Hit Pharma Companies,” by Maureen Farrell, *Dow Jones Newswires*, 20 October 2015.

145. On 19 October 2015, Valeant stock declined 8.05% (on a logarithmic return basis). The residual return on Valeant stock was -8.26%. A residual return of -8.26% is associated with a *t*-statistic value of -4.12, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

2. Philidor Disclosure Event Study: 26 October 2015

146. On 26 October 2015, the Company filed its Form 10-Q for Q3 2015 and held a conference call with investors.⁹⁰ In its Form 10-Q filed that day, the Company disclosed that it had

⁹⁰ “Valeant Pharmaceuticals International, Inc., Form 10-Q for the Quarter Ended 30 September 2015, filed 26 October 2015; “Valeant Pharmaceuticals International Inc To Hold Investor Conference Call,” *Thomson Reuters*, 26 October 2015, 8:00 AM GMT.

“power to direct Philidor’s activities and its obligation to absorb their losses and rights to receive their benefits.”⁹¹

147. In the same filing, the Company stated:

“[T]hat its Audit and Risk Committee and the full Board of Directors have reviewed the Company’s accounting for its Philidor arrangement and have confirmed the appropriateness of the Company’s related revenue recognition and accounting treatment. Based on its review conducted through that date, the Company believed that it was in compliance with applicable law. In light of the recent allegations made regarding Philidor, however, the Board of Directors decided to establish an ad hoc committee of the board to review allegations related to the Company’s business relationship with Philidor and related matters.”

Valeant Pharmaceuticals International, Inc., Form 10-Q for the Quarter Ended 30 September 2015, filed 26 October 2015, p. 38.

148. On the conference call with analysts and investors, Valeant provided additional details regarding its relationship with Philidor, including the Company’s purchase option for Philidor and certain accounting policies.

“[Howard Schiller, Board Member and former CFO]: In the case of Philidor, an option purchase, however, there was no day one as we did not buy Philidor. They retained their systems and policies. The Philidor employees did not report to Valeant. Philidor remained an independent company. Valeant paid an upfront payment of \$100 million to acquire an option to purchase Philidor, as well as sales-based milestones of up to \$133 million, of which \$33 million has already been paid. Philidor has remained an independent company while Valeant has retained certain rights that include a joint steering committee, the right to approve certain employees and their position, the right to audit, adherence to certain covenants with respect to clients to all applicable laws, and the right to conduct HIPAA security risk assessments. Philidor is a separate limited liability entity and we believe we do not have any legal liability for Philidor.”

“Valeant Pharmaceuticals International Inc To Hold Investor Conference Call,” Thomson Reuters, Company conference call, 26 October 2015, 8:00 AM, p. 6.

⁹¹ Valeant Pharmaceuticals International, Inc., Form 10-Q for the Quarter Ended 30 September 2015, filed 26 October 2015, p. 13.

149. Contemporaneous news commentary discussed the issues raised by the new disclosures.

“Today, Valeant further said it paid \$100 million in late 2014 to acquire the option, which can be exercised for a cost of \$0. Valeant also said at the time the option was acquired Philidor’s year-to-date net sales were \$111 million, far below a 10% consolidated revenue threshold that would make the entity material. Thus, the option purchase and consolidation wasn’t independently disclosed. Philidor represents less than 1% of total assets and 7% of consolidated revenue, Valeant said.

“Valeant Pharmaceuticals Says Philidor Rx Was Not Material, Distances Itself From Liability,” by Antoine Garam, *Forbes*, 26 October 2016.

“Among the items to tackle the thorny accounting issues surrounding the company was the firm’s relationship with one of its distributors. Criticism by short sellers and some media focuses on the until recently unacknowledged specialized pharmacy network. Valeant (VRX, US) brought out all of its financial executives to explain, more than once, that prior lack of disclosure about Philidor RX Services was acceptable under the accounting standards. That’s because, the company said, Philidor’s revenues did not meet the threshold for segment reporting, either before or after the company purchased an option at \$100 million to buy the company for \$0.”

“Valeant’s Newest Disclosure — The \$100 Million Option to Buy a Company for Nothing,” by Francine McKenna, *MarketWatch*, 26 October 2015.

150. On 26 October 2015, Valeant stock declined 5.41% (on a logarithmic return basis). The residual return on Valeant stock was -5.98%. A residual return of -5.98% is associated with a *t*-statistic value of -2.36, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

3. Philidor Disclosure Event Study: 30 October 2015

151. On 30 October 2015, the Company issued a press release titled “Valeant To Terminate Relationship With Philidor.”⁹² In its press release Valeant stated that it was “severing all ties with Philidor Rx Services, LLC, and that Philidor has informed Valeant that it will shut down operations as soon as possible, consistent with applicable laws.”⁹³

152. The press release also provided the following comments from CEO Michael Pearson:

“‘The newest allegations about activities at Philidor raise additional questions about the company’s business practices,’ said J. Michael Pearson, Valeant’s chairman and chief executive officer. ‘We have lost confidence in Philidor’s ability to continue to operate in a manner that is acceptable to Valeant and the patients and doctors we serve.’ ‘We understand that patients, doctors and business partners have been disturbed by the reports of improper behavior at Philidor, just as we have been,’ Pearson said. ‘We know the allegations have also led them to question Valeant and our integrity, and for that I take complete responsibility. Operating honestly and ethically is our first priority, and you have my absolute commitment that we will make it right.’”

“Press Release: Valeant To Terminate Relationship With Philidor,” Company press release, *Dow Jones Newswire*, 30 October 2015, 5:00 AM.

153. Contemporaneous news commentary discussed the new disclosures.

“Valeant Pharmaceuticals International Inc., down \$17.73 to \$93.77. The company is cutting ties with Philidor, which is shutting down following accusations that it was a ‘phantom pharmacy’ used solely to artificially boost sales.”

“Valeant And CVS Are Big Market Movers,” *Associated Press*, 30 October 2015, 5:15 PM.

⁹² “Valeant To Terminate Relationship With Philidor,” Company press release, *Dow Jones Newswire*, 30 October 2015, 5:00 AM.

⁹³ Id.

“Valeant Pharmaceuticals International slumped 15.9 percent as it announced it was severing ties with mail-order pharmacy Philidor RX, which has been criticized for predatory pricing of drugs.”

“US Stocks End Banner October On Down Note,” *Agence France Presse*, 4:46 PM.

154. On 30 October 2015, Valeant stock declined 17.32% (on a logarithmic return basis). The residual return on Valeant stock was -16.21%. A residual return of -16.21% is associated with a *t*-statistic value of -6.25. Therefore, the stock return is statistically significant at the 95% confidence level, which indicates that the residual decline was too severe to have been merely a random fluctuation.

4. Philidor Disclosure Event Study: 10 November 2015

155. On 10 November 2015, Valeant held a conference call to update analysts and investors on its “strategy with respect to specialty pharmacies, to explain our transition plans for Philidor, to discuss our business performance for the first half of the quarter.”⁹⁴ Among other things, CEO Michael Pearson stated:

“We began working with Philidor because we believed a strong relationship with one specialty pharmacy would deliver better, faster customer service for doctors and patients. We were also looking for a pharmacy which would be willing to process prescriptions before adjudicating the claims, which would allow us, rather than the patient, to assume the risk if the commercial payer denied the claim. As you know, however, when some other recent allegations surrounding Philidor’s business practices came to light we decided it was appropriate to terminate our relationship.”

“Valeant Pharmaceuticals International Inc Conference Call to Provide Business Update,” *Thomson Reuters*, 10 November 2015, 8:00 AM, p. 3.

156. On 10 November 2015, Valeant stock declined 2.05% (on a logarithmic return basis). The residual return on Valeant stock was -2.58%. A residual return of -2.58% is associated

⁹⁴ “Valeant Pharmaceuticals International Inc Conference Call to Provide Business Update,” *Thomson Reuters*, 10 November 2015, 8:00 AM GMT, p. 3.

with a t -statistic value of -0.91, which indicates that while the stock price fell, the residual return was not statistically significant at the 95% confidence level.

5. Philidor Disclosure Event Study: 23 February 2016

157. On 22 February 2016, after the close of trading, the Company issued a press release stating, among other things, that the Company “identified certain sales to Philidor during 2014, prior to Valeant’s entry into an option to acquire Philidor, that should have been recognized when product was dispensed to patients rather than on delivery to Philidor.”⁹⁵ According to the Company, “approximately \$58 million of net revenues previously recognized in the second half of 2014 should not have been recognized upon delivery of product to Philidor. Correcting the misstatements is expected to reduce reported 2014 GAAP EPS by approximately \$0.10 and increase 2015 GAAP EPS by approximately \$0.09.”⁹⁶

158. While shares were reported to have decline on this news during after-hours trading, the price movement the next day was positive but not statistically significant.

“Valeant shares tumbled more than nine per cent in after-hours trading on Monday on the back of a report that the specialty pharmaceutical company will have to restate its earnings.”

“Valeant Slides on Report Company to Restate Earnings,” by Adam Sampson, *Financial Times*, 22 February 2016, 5:14 PM.

159. On 23 February 2016, Valeant stock increased 4.32% (on a logarithmic return basis), with a residual return of 6.28%. A residual return of 6.28% is associated with a t -statistic

⁹⁵ “Valeant Ad Hoc Committee Has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters,” Company press release, 22 February 2016.

⁹⁶ “Valeant Ad Hoc Committee Has Made Substantial Progress in Its Review of Philidor and Related Accounting Matters,” Company press release, 22 February 2016.

value of 1.72, which indicates that the residual return was not statistically significant at the 95% confidence level.

6. Philidor Disclosure Event Study: 29 February 2016

160. On 28 February 2016 (Sunday), the Company issued a press release that included the disclosure the “Ad Hoc Committee is continuing its review of the circumstances relating to” the “accounting matters and appropriate actions to be taken.”⁹⁷ The Ad Hoc Committee referred to was the one the Board of Directors established to review allegations related to the Company’s business relationship with Philidor.

161. The press release also announced that the Company was “withdrawing its prior financial guidance” and it expected to “provide preliminary financial information for the fourth quarter of 2015, and 2016 guidance, in the near term.”⁹⁸

162. On 29 February 2016, the Company announced that it was under investigation by the SEC.⁹⁹ Further, Moody’s placed Valeant’s corporate credit ratings under review, stating that it “reflect[ed] concerns that Valeant’s underlying operating performance is weaker than Moody’s previous expectations.”¹⁰⁰

“A day that began badly for Valeant Pharmaceuticals International Inc. got a whole lot worse in the last hour of trading. A spokeswoman said the SEC is investigating the company. Valeant's stock was already down nearly 10% Monday after the company Sunday night pulled its guidance, delayed a call

⁹⁷ “Valeant Pharmaceuticals Announces Management and Business Update,” *PR Newswire*, Company Press Release, 28 February 2016.

⁹⁸ “Valeant Pharmaceuticals Announces Management and Business Update,” *PR Newswire*, Company Press Release, 28 February 2016.

⁹⁹ “Valeant Says It’s Under Investigation by SEC; Shares Sink 20%,” by Cynthia Koons and Arie Shapira, *Bloomberg News*, 29 February 2016 15:36 EDT.

¹⁰⁰ “Moody's reviews Valeant's ratings for downgrade,” Moody’s Investors Services Press Release, 29 February 2016.

to discuss its fourth-quarter earnings, revealed that Allergan PLC was challenging the patent to a key drug, and then saw Moody's put it on negative ratings watch. The WSJ is reporting: Valeant 'confirms that it has several ongoing investigations,' including by the SEC, a Valeant spokeswoman said in a statement. She also noted that the company faces investigations from U.S. Attorney's offices in New York and Massachusetts and from Congress. Scrutiny from the Justice Department and Congress was previously known. Shares of Valeant closed down more than 18% and hit a three-year intraday low of \$63.75."

"Valeant's Day Goes from Bad to Worse," by Stephen Grocer, *Dow Jones Newswires*, 29 February 2016, 4:18 PM.

163. On 29 February 2016, Valeant stock declined 20.35% (on a logarithmic return basis). The residual return on Valeant stock was -17.72%. A residual return of -17.72% is associated with a *t*-statistic value of -4.82, which is statistically significant at the 95% confidence level. Therefore, the residual return was too large to have been merely a random fluctuation.

7. Philidor Disclosure Event Study: 15 March 2016

164. On 15 March 2016, prior to the start of trading, the Company issued a press release announcing preliminary unaudited financial results for Q4 2015, revised its FY 2016 guidance downward, and held a conference call with analysts and investors.¹⁰¹ Valeant also disclosed \$51.3 million in costs related to Philidor, which included write-downs of fixed assets and bad debt expenses during the period 1 November 2015 through 31 December 2015. In addition, the Company disclosed a "\$79.0 million impairment charge related to Philidor Rx Services."¹⁰²

¹⁰¹ Valeant Pharmaceuticals International, Inc., Form 8 K, filed 15 March 2016, and "Q4 2015 Valeant Pharmaceuticals International Inc Earnings Call Unaudited," *Thomson Reuters*, 15 March 2016 8:00 AM GMT.

¹⁰² Valeant Pharmaceuticals International, Inc., Form 8 K, filed 15 March 2016.

“Shares of Valeant Pharmaceuticals International Inc. plummeted by half after the drugmaker slashed its guidance and said it could be in danger of defaulting on some of its debt.”

“Valeant Shares Cut in Half -- Health-Care Roundup,” *Dow Jones Newswires*, 15 March 2016, 4:32 PM.

“The crisis around Valeant Pharmaceuticals International's long-term prospects has suddenly turned into a fight for its immediate survival. Valeant on Tuesday finally unveiled its unaudited fourth-quarter results and 2016 financial guidance. The shocker for investors: news from returning chief Michael Pearson that the company can't say for sure when audited financials for 2015 will be ready to file with the Securities and Exchange Commission. This isn't merely a technical matter; failure to file the already delayed results could set off a chain of events that could leave Valeant in breach of bank-loan and debt covenants. That in turn could spark a default that could ripple across the company's \$30.2 billion in long-term liabilities. No wonder the already hobbled stock lost more than 40% of its value at one point Tuesday. A default could raise the prospect of a bankruptcy filing, which could leave equity holders with little or no value.”

“Valeant: Why Investors Are Dumping the Stock; Valeant's Update Tuesday Started the Clock Ticking On Its \$30 Billion Debt Mountain,” by Charley Grant, *The Wall Street Journal*, 15 March 2016, 11:56 AM.

165. On 15 March 2016, Valeant stock declined 72.28% (on a logarithmic return basis).

The residual return on Valeant stock was -69.78%. A residual return of -69.78% is associated with a *t*-statistic value of -18.63, which is statistically significant at the 95% confidence level.

Therefore, the residual return was too large to have been merely a random fluctuation.

8. Summary of Philidor Disclosure Event Study Results

166. Valeant stock exhibited statistically significant stock price reactions following five of the seven Philidor disclosure events.

D. Collective Empirical Test Conducted on All Earnings or Guidance Announcement Event Dates

167. In addition to assessing market efficiency by observing whether the stock price reacted appropriately on important news events individually, one at a time, one can also test for market efficiency by assessing collectively whether the stock generally moved more on days with

greater information flow than on more typical days with less news. That is, if the stock price movements are generally greater among a collection of news days than among all other non- or lesser-news days, this result would establish that there is a cause and effect relationship between the flow of information and stock price movements, which indicates market efficiency.

168. I conducted a collective empirical test of market efficiency based on these principles. I focused the analysis on earnings or guidance announcements. A company's financial results and forecasts are among the most important considerations to investors assessing the value of its stock. While not every earnings or guidance announcement contains new, unexpected, highly impactful valuation information, the finance literature notes that such information more frequently arrives on earnings announcement dates than on ordinary dates.¹⁰³

169. Numerous well-known and highly-regarded academic studies (for example, Beaver [1968], Ball and Brown [1968], Ball [1978], Watts [1978], Patell and Wolfson [1984], and Ball and Kothari [1991]) have specifically examined stock price movements caused by earnings announcements, and concur that earnings announcements are unusually important information events generally.

170. Consequently, a pattern of greater stock price movement on earnings or guidance announcement days as compared to all other non- or lesser-news dates is indicative of market efficiency.

171. To be conservative and strictly abide by the selection rule, I included among the non-news days" any acquisition announcement event dates and Philidor disclosure event dates that

¹⁰³ *Financial Reporting: An Accounting Revolution*, 3rd ed., William H. Beaver, 1998, p. 38; and "Earnings Management to Exceed Thresholds," by Francois Degeorge, Jayendu Patel, and Richard Zeckhauser, *Journal of Business*, 1999, p. 1.

were not also earnings or guidance announcement dates, even though these dates were high information flow dates.

172. Table-1 presents a list of earnings or guidance announcements made during the Class Period.

Table-1: Earnings or Guidance Announcements During the Class Period

Announcement				Effective Event	
Date	Time	Type	Test Date	Source	
[1] Friday, January 04, 2013	Before Trading	Guidance	Friday, January 04, 2013	Company 8-K	
[2] Thursday, February 28, 2013	Before Trading	Earnings	Thursday, February 28, 2013	Company Press Release	
[3] Thursday, May 02, 2013	Before Trading	Earnings	Thursday, May 02, 2013	Company Press Release	
[4] Wednesday, August 07, 2013	Before Trading	Earnings	Wednesday, August 07, 2013	Company Press Release	
[5] Thursday, October 31, 2013	Before Trading	Earnings	Thursday, October 31, 2013	Company Press Release	
[6] Tuesday, January 07, 2014	During Trading	Guidance	Tuesday, January 07, 2014	Company Press Release	
[7] Thursday, February 27, 2014	Before Trading	Earnings	Thursday, February 27, 2014	Company Press Release	
[8] Tuesday, April 22, 2014	Before Trading	Guidance	Tuesday, April 22, 2014	Company Press Release	
[9] Thursday, May 08, 2014	Before Trading	Earnings	Thursday, May 08, 2014	Company Press Release	
[10] Thursday, July 31, 2014	Before Trading	Earnings	Thursday, July 31, 2014	Company Press Release	
[11] Wednesday, September 24, 2014	Before Trading	Guidance	Wednesday, September 24, 2014	Company Press Release	
[12] Monday, October 20, 2014	Before Trading	Earnings	Monday, October 20, 2014	Company Press Release	
[13] Thursday, January 08, 2015	Before Trading	Guidance	Thursday, January 08, 2015	Company Press Release	
[14] Sunday, February 22, 2015	Weekend	Earnings	Monday, February 23, 2015	Company Press Release	
[15] Wednesday, April 29, 2015	Before Trading	Earnings	Wednesday, April 29, 2015	Company Press Release	
[16] Thursday, July 23, 2015	Before Trading	Earnings	Thursday, July 23, 2015	Company Press Release	
[17] Monday, October 19, 2015	Before Trading	Earnings	Monday, October 19, 2015	Company Press Release	
[18] Wednesday, December 16, 2015	Before Trading	Guidance	Wednesday, December 16, 2015	Company Press Release	
[19] Tuesday, March 15, 2016	Before Trading	Earnings	Tuesday, March 15, 2016	Company 8-K	

173. There was no doubt additional valuation-relevant information aside from earnings information was disseminated on these event dates. Stock price reactions to such additional information would be further support of market efficiency.

1. Fisher's Exact Test of Market Efficiency Evident in Significance Incidence Rates

174. Fisher's Exact Test is a commonly used and widely accepted methodology for testing whether incidence rates are different between two groups of data. When applied to testing market efficiency, Fisher's Exact Test examines whether the frequency of significant events (the incidence of significance) is the same or different between a group of news events and a group of non- or lesser news dates.

175. The use of tests that compare price changes on news day to non- or lesser -news days for purposes of assessing informational market efficiency in securities cases is now widely used and well documented. For example, such tests were recognized by the group of eight testifying finance experts (including but in addition to myself) who wrote an Amici Curiae brief for *Halliburton II* as legitimate tests for market efficiency.

“Another way to perform an event study is to divide the days of the class period ex ante into expected news days and non-news days before examining price movements, and then compare the stock’s price movements in the two categories to see if there is a statistically significant difference in price movement between the two categories. If the study finds a difference in price movement between the two sample sets (e.g., earnings-release dates versus non-earnings-release dates), that is statistical evidence that the market incorporates new public information into the price of the stock.”

Brief of Testifying Economists as Amici Curiae in Support of Respondent, *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc., FKA Archdiocese of Milwaukee Supporting Fund, Inc.*, 5 February 2014, p. 10.

176. Several courts have accepted tests that compare price changes on a sample of news days to a sample of non-news days, as valid tests for establishing market efficiency.

“For that reason, courts have instead endorsed the comparison test that [Plaintiffs’ expert] used. See, e.g., *In re Alstom SA Sec. Litig.*, 253 F.R.D. 266, 280 (S.D.N.Y.2008). This test ‘involves comparing the percentage of days with news that have a statistically significant price movement to the percentage of days without news that have a statistically significant price movement.’ Paul A. Ferrillo et al., *The ‘Less Than’ Efficient Capital Markets Hypothesis: Requiring More Proof from Plaintiffs in Fraud-on-the-Market Cases*, 78 St. John’s L. Rev. 81, 120 (2004). If the stock price is significantly more likely to change on News Days than on Non-News Days, that suggests a causal relationship between material news and the stock price.”

***McIntire v. China Media Express Holdings, Inc.*, 38 F. Supp. 2d 415 (S.D.N.Y. 2014).**

“There is no dispute that z-tests are commonly used and widely accepted statistical tools. ... [Defendant’s expert] contends that, because the article was not peer-reviewed, a z-test cannot be used to show market efficiency. Were Feinstein using a novel or questionable statistical technique, the Court would place more weight on the absence of peer review. But it is not necessary for every application of a commonly used statistical technique to be peer-reviewed. Indeed, the elegance of statistical methods is that they can be applied to data sets of varying substantive significance, from rates of emphysema to transactions on modern securities markets. Because the Court is convinced that the z-test is a well-established and sound statistical technique, the lack of peer review does not seriously undermine Feinstein’s application of the z-test.”

In re Petrobras Securities Litigation, No. 14-cv-9662 (JSR) (S.D.N.Y. Feb. 2, 2016).

“Plaintiffs’ expert[] conducted an event study using Tidel’s trading data. He identified two-day periods in which information pertaining to Tidel was released to the public and separated those two day[] [periods] from other two day periods in which there was no public information pertaining to Tidel. The periods were classified into “information” versus “non-information days” [Plaintiffs’ expert] concluded that the price changes on information days versus non-information days was statistically significant, meaning there was a related cause and effect relationship between [a] the release of information pertaining to Tidel and [b] Tidel’s stock price. Simply put, [Plaintiffs’ expert’s] tests indicated that Tidel’s stock price reacted within a two day window to news releases concerning Tidel, which indicates market efficiency.”

Lehocky v. Tidel Tech., Inc., 220 F.R.D. 491 (S.D. Tex. 2004).

“The expert also concluded FCStone’s stock was approximately one-and-a-half to two times as likely to experience a change in stock price on days when company-specific news was announced than on days when it was not. However, for legal purposes, the critical question is whether the price quickly absorbs and reflects news about the company because this is what allows the legal presumption that (1) the price incorporates public information and (2) the investor relied on the price as the repository of that public information. [The defendants’ expert’s] report establishes that when news about the company is made public, the company’s stock price immediately incorporates the information. This is the essence of an efficient market — perhaps not for an economist’s purposes, but for purposes of *Basic*.”

Lumen v. Anderson, No. 08-0514-CV-W-HFS (W.D. Mo. Feb. 10, 2012).

“Additionally, experts routinely use, and courts accept, collective tests on the earnings and guidance dates like the one utilized by Bettencourt. *See In re NII Holdings*, 311 F.R.D. at 412 (finding expert’s collective test of company’s earnings announcements objective and reliable).”

City Of Cape Coral Municipal Firefighters’ Retirement Plan, Et Al., v. Emergent Biosolutions, Inc., Hq, Et Al., 16-cv-2625, 2018 WL 2840420, at 7.

177. Widespread support for collective tests that compare price changes on a sample of news days to non-news days as tests of market efficiency is further evident in the following articles.

“Assume for the moment that a stock does not trade in an efficient market, meaning that the daily stock prices do not reflect full information and significant abnormal returns are not associated with the disclosure of information. It then logically follows that, for a security trading in an inefficient market, we will observe that: a) the securities’ returns are determined arbitrarily or in a random fashion, and b) there will be no link between disclosures and significant abnormal returns – in other words, disclosures and significant returns are randomly distributed. To test this hypothesis, we have established a new statistical method employing a generally accepted approach called *Bootstrap testing*. This approach has been accepted by both the *DVI* and *HealthSouth* courts. We have created test statistics to determine if the actual observations are likely to have been generated in a random fashion. If information disclosures are not linked to abnormal returns, then we would not expect there to be a statistically significant relationship that distinguishes those days when there are/are not disclosures of information from those days when there are/are not abnormal returns. In other words, there is no cause-and-effect correlation, because, in an inefficient market, the distributions of abnormal returns and disclosures are both random events.”

“The Curious Incident of the Dog That Didn’t Bark and Establishing Cause-and-Effect in Class Action Securities Litigation,” by Michael L. Hartzmark, and H. Nejat Seyhun, *Va. L. & Bus. Rev.* 6 (2011): 415. (emphasis in original).

“In terms of the application of the EMH [Efficient Market Hypothesis] to securities class actions, an important question is whether any allegedly fraudulent information would cause a change in the issuer’s stock price. However, because the market does not know (at the time) whether any information it receives is legitimate or fraudulent, this question can be answered by testing whether the market for a particular issuer’s stock responds to news more generally. If it does, then one is more confident that the stock price would be affected by any material false information or would have responded to material omitted information. If the stock price does not

generally respond to news, then the presumption should then become that the stock was not affected by any false news and may not have responded to allegedly omitted information. Because stock prices move all the time, one must compare the movements in response to news stories with a control group of prices.”

“The ‘Less Than’ Efficient Capital Markets Hypothesis: Requiring More Proof from Plaintiffs in Fraud-on-the-Market Cases,” by Paul A. Ferrillo, Frederick C. Dunbar and David Tabak, vol. 78, *St. John’s L. Rev.* 81, 119-22 (2004).

178. I conducted a Fisher’s Exact Test using the event study results from the earnings or guidance announcement news event days compared against all other days in the Class Period.

a. Fisher’s Exact Test

179. There was a total of 804 days during the Class Period on which Valeant stock traded. Of the 804 days, 62 days had statistically significant residual returns. There were 11 statistically significant earnings or guidance announcement days out of the total 19 earnings or guidance announcement days. 51 of the remaining 785 non-news days were statistically significant. Accordingly, the proportion of statistically significant days among the earnings or guidance announcement days is 57.9% and the proportion of statistically significant days among all other days is 6.5%.

180. This incidence of statistically significant days within the news day group was significantly greater than within the non-news group. The difference in incidence frequency is associated with a p-value of 0.000001%. This finding indicates that the significance frequency rate difference between the two samples is far too acute to accept the notion that the price of Valeant stock behaved no differently on news event days with a greater flow of information than all other days. The difference in significance incidence frequency is statistically significant at greater than the 99% confidence level. This finding proves that Valeant stock reacted to information, demonstrating informationally efficiency over the course of the Class Period.

E. Valeant Stock Market Efficiency Summary and Conclusion

181. Valeant stock traded on the NYSE, and numerous market makers facilitated trading in the security. The Company was widely covered by analysts and the news media. Institutional ownership of Valeant stock was widespread, and trading was active. Market capitalization and float were high. The security's bid-ask spread was narrow. Current and historical financial information about the Company was readily available to investors and analysts. The Company qualified for S-3 registration, throughout the Class Period, except during the 3-week period from 22 February 2016 through the end of the Class Period, when it delayed SEC filings. Even during that period, Valeant met the float size requirement for S-3 eligibility, which is the more salient characteristic relevant to market efficiency.

182. Not only did Valeant stock satisfy the first four *Cammer* and all three *Krogerman* factors, which indicate market efficiency, but it also satisfied the empirical *Cammer* factor, demonstrating market efficiency in a manner observable via empirical tests. The empirical tests prove that there was a cause and effect relationship between the release of Company information and movements in the Valeant stock price.

183. Given these facts, I conclude that Valeant stock traded in an efficient market over the course of the Class Period.

VIII. EFFICIENCY OF THE MARKET FOR VALEANT OPTIONS

184. I was asked to also assess whether the market for Valeant options was efficient during the Class Period. Stock options are contracts that allow the holder of the contract to buy or sell an underlying stock at a prespecified price ("strike price") at or up to a specified date ("expiration date").

185. Exchange-traded options are traded in units called “contracts.” Each option contract entitles the holder to buy or sell 100 shares of the underlying stock upon exercise. The holder of one call option contract has the right, but not the obligation, to purchase 100 shares of the underlying stock at the strike price, and the holder of a put option contract has the right, but not the obligation, to sell 100 shares of the underlying stock at the strike price.

186. Because the relationship between option contracts and the underlying stock is derivative, the value of a call option should generally increase (decrease) following an increase (decrease) in the price of the underlying stock, and the value of a put option should generally decrease (increase) following an increase (decrease) in the price of the underlying stock, holding all other parameters equal.

187. Therefore, the factors that indicate the efficiency of the market for Valeant common stock examined above are relevant to assessing the efficiency of the market for the Valeant options. These factors compel a conclusion that Valeant options traded in an efficient market over the course of the Class Period.

188. In particular, the *Cammer* court explicitly acknowledged the importance of a Chicago Board Options Exchange listing and the implications of such a listing for market efficiency:

“We think that, at a minimum, there should be a presumption – probably conditional for class determination – that certain markets are developed and efficient for virtually all the securities traded there: the New York and American Stock Exchanges, the Chicago Board Options Exchange and the NASDAQ National Market System.”

Cammer, 711 F. Supp. at 1292 (quoting Bromberg & Lowenfels, *Securities Fraud and Commodities Fraud*, §8.6 (1988)).

189. That the Valeant Options traded on the Chicago Board Options Exchange is strong evidence that the Valeant Options traded in an efficient market throughout the Class Period.

A. Event Study Test of Market Efficiency for Valeant Options

190. In an informationally efficient market, one would expect the price of Valeant call options to increase (decline) following the positive (negative) events tested in the common stock event study. Conversely, one would expect the price of Valeant put options to increase (decline) following the negative (positive) events tested in the common stock (controlling for changing time to expiration and volatility). To test this hypothesis, I conducted empirical tests, subjecting Valeant options to examination on the same event dates used in the common stock study.

191. According to option pricing principles, a combination portfolio consisting of a purchased call option, a written put option, and a long position in a risk-free investment initially equal to the present value of the option strike price should replicate an investment in Valeant common stock. The options literature explains that such a combination can be treated as a “synthetic stock”, and its behavior in an efficient market should track the behavior of actual stock.¹⁰⁴ Based on this principle I constructed a timeseries of synthetic stock prices so that I could test whether the option prices responded to the release of new Company-specific information, in a statistically significant manner similar to the behavior of the underlying stock.¹⁰⁵

192. If an investor were to purchase a synthetic share of Valeant stock, that investor would need to buy a call option at its ask price, sell a put at its bid price, and invest at the risk-free rate to execute this transaction. This combination of values would produce the “synthetic ask price” for the synthetic stock.¹⁰⁶

¹⁰⁴ This relationship holds for non-dividend paying stocks, and Valeant did not pay a dividend during the Class Period.

¹⁰⁵ See, for example, *Option, Futures, and other Derivatives*, by John C. Hull, eighth edition, Prentice Hall, 2012.

¹⁰⁶ The call and put options must have the same strike price and time to expiration.

193. For the risk-free rate I used the 1-Year Treasury Constant Maturity Rate.¹⁰⁷ The synthetic ask price is computed as follows:

$$S_{Ask} = C_{Ask} - P_{Bid} + PV(K),$$

where:

S = Synthetic stock price,

C = Call price,

P = Put price,

PV(K) = Present value of the strike price (invested cash).

194. Alternatively, if an investor were to sell a synthetic share of Valeant stock, that investor would need to sell a call option at its bid price, buy a put option at its ask price, and borrow the present value of the strike price. This combination of values would produce the “synthetic bid price” for the synthetic stock. I used the Broker-Call Money Rate Index to obtain the interest rate for borrowed money.¹⁰⁸ Interest rate data are presented in Exhibit-8.

195. The synthetic bid price is be computed as follows:

$$S_{Bid} = C_{Bid} - P_{Ask} + PV(K),$$

where:

S = Synthetic stock price,

C = Call price,

P = Put price,

PV(K) = Present value of the strike price (borrowed money).

¹⁰⁷ Interest rate data was obtained from the Federal Reserve at: <https://fred.stlouisfed.org/series/DGS1>.

¹⁰⁸ Broker-Call Money Rate Index obtained from Bloomberg.

196. Using the above formulas and end-of-day option contract price data obtained from *iVolatility*, I computed synthetic stock prices from Valeant options, for every day during the Class Period. I used every option contract for which there was a posted end-of-day price. On each day, I averaged (equal-weighted) all computed synthetic stock bid prices, to arrive at that day's synthetic stock bid price. On each day, I averaged (equal-weighted) all computed synthetic stock ask prices, to arrive at that day's synthetic stock ask price. I then took the midpoint of the synthetic stock ask and bid prices, to arrive at each respective day's synthetic stock price constructed from option prices.

197. From the synthetic stock prices, I calculated daily logarithmic returns.¹⁰⁹ The prices and returns of the synthetic stock are presented in Exhibit-9.

198. I ran regressions on the daily synthetic stock price returns using the same explanatory variables, estimation periods, and dummy variables that I used for the common stock event study regressions. The regression results are presented in Exhibit-10.

199. I computed the explained portion of Valeant synthetic stock return on each event date by adding: 1) the estimated regression intercept term, 2) the respective day's Market Index return multiplied by the Market Index coefficient estimated by the regression, and 3) the respective day's Sector Index return multiplied by the Sector Index coefficient estimated by the regression. Residual returns were computed by subtracting the explained return from the actual return.

200. Just as with the common stock, a *t*-test was conducted to determine whether the residual return of the Valeant synthetic stock (which reflects the option prices) was statistically

¹⁰⁹ Because creating a synthetic share of stock requires that the call option and put option have the same strike price and time to expiration, the analysis was performed on only option contracts that could be matched based on strike price, date of execution, and date of expiration.

significant on the event dates. The results of the event study are presented below and summarized in Exhibit-11a and Exhibit-11b.

B. Acquisition Announcement Options Event Study Results

1. Acquisition Announcement Options Event Study Results: 28 May 2013

201. On 28 May 2013, Valeant synthetic stock increased 8.85% (on a logarithmic return basis). The residual return on Valeant synthetic stock was 8.03%. A residual return of 8.03% is associated with a *t*-statistic value of 4.84, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too large to have been merely a random fluctuation.

2. Acquisition Announcement Options Event Study Results: 22 April 2014

202. On 22 April 2014, Valeant synthetic stock increased 7.32% (on a logarithmic return basis). The residual return on Valeant synthetic stock was 4.99%. A residual return of 4.99% is associated with a *t*-statistic value of 3.31, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too large to have been merely a random fluctuation.

3. Acquisition Announcement Options Event Study Results: 23 February 2015

203. On 23 February 2015, Valeant synthetic stock increased 13.82% (on a logarithmic return basis). The residual return on Valeant synthetic stock was 13.81%. A residual return of 13.81% is associated with a *t*-statistic value of 9.86, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too large to have been merely a random fluctuation.

4. Summary of Acquisition Announcement Options Event Study Results

204. Valeant synthetic stock exhibited strongly statistically significant stock price reactions following all three of the major acquisition announcements, just as the common stock exhibited statistically significant stock price reactions on these same dates.

C. Philidor Disclosure Options Event Study Results

1. Philidor Disclosure Options Event Study: 19 October 2015

205. On 19 October 2015, Valeant synthetic stock declined 8.14% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -8.34%. A residual return of -8.34% is associated with a t -statistic value of -4.22, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too severe to have been merely a random fluctuation.

2. Philidor Disclosure Options Event Study: 26 October 2015

206. On 26 October 2015, Valeant synthetic stock declined 5.39% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -5.90%. A residual return of -5.90% is associated with a t -statistic value of -2.35, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too severe to have been merely a random fluctuation.

3. Philidor Disclosure Options Event Study: 30 October 2015

207. On 30 October 2015, Valeant synthetic stock declined 17.13% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -16.07%. A residual return of -16.07% is associated with a t -statistic value of -6.26, which is statistically significant at the

95% confidence level. Therefore, the synthetic stock residual return was too severe to have been merely a random fluctuation.

4. Philidor Disclosure Options Event Study: 10 November 2015

208. On 10 November 2015, Valeant synthetic stock declined 1.66% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -2.16%. A residual return of -2.16% is associated with a *t*-statistic value of -0.77, which indicates that the synthetic stock residual return was not statistically significant at the 95% confidence level.

5. Philidor Disclosure Options Event Study: 23 February 2016

209. On 23 February 2016, Valeant synthetic stock increased 5.01% (on a logarithmic return basis). The residual return on Valeant synthetic stock 6.91%. A residual return of 6.91% is associated with a *t*-statistic value of 1.93, which indicates that the synthetic stock residual return was not statistically significant at the 95% confidence level.

6. Philidor Disclosure Options Event Study: 29 February 2016

210. On 29 February 2016, Valeant synthetic stock declined 20.83% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -18.27%. A residual return of -18.27% is associated with a *t*-statistic value of -5.08, which is statistically significant at the 95% confidence level. Therefore, the synthetic stock residual return was too severe to have been merely a random fluctuation.

7. Philidor Disclosure Options Event Study: 15 March 2016

211. On 15 March 2016, Valeant synthetic stock declined 73.01% (on a logarithmic return basis). The residual return on Valeant synthetic stock was -70.56%. A residual return of -70.56% is associated with a *t*-statistic value of -19.27, which is statistically significant at the

95% confidence level. Therefore, the synthetic stock residual return was too severe to have been merely a random fluctuation.

8. Summary of Philidor Disclosure Options Event Study Results

212. The Philidor disclosure options event study shows that for the same 5 of 7 Philidor disclosure events on which the common stock reacted with statistically significant price movements, the synthetic stock composed from Valeant options similarly exhibited statistically significant price movements. Moreover, all synthetic stock price movements on event dates were in the same direction as the common stock price movements. The event study shows that the cause and effect relationship already observed between new, unexpected, valuation-relevant information and significant reactions in the market price of Valeant common stock was similarly reflected in the price movements of the Valeant options. These findings demonstrate that Valeant options contracts reacted to new information, which is the hallmark of an informationally efficient market.

213. Given these facts, I conclude that the Valeant option contracts traded in an efficient market during the Class Period.

IX. SECTION 10(B) COMMON DAMAGES METHODOLOGY

214. Counsel for Plaintiffs asked me to opine on whether damages in this matter can be computed using a common methodology for all Class members in connection with their claims under Section 10(b) of the Exchange Act.

215. Assuming a verdict for the Plaintiffs on the allegations of fraud, Section 10(b) per share damages, respectively for each investor and security, can be measured as follows:

- i. First, valuation tools, which would include event study analysis such as that described herein, and potentially other empirical analyses if necessary, would be used to establish that the disclosure(s), correcting the alleged misrepresentations

and omissions, caused the price of the Valeant security to fall. This analysis, after controlling for potentially non-fraud-related information, would establish that the alleged misrepresentations and omissions had caused the security to be artificially inflated, and that the corrective disclosure(s) caused the inflation to dissipate, in turn causing investor losses.¹¹⁰ This analysis would apply on a class-wide basis.

- ii. Second, an inflation ribbon would be constructed, using generally accepted empirical analysis and valuation tools, indicating how much artificial inflation caused by the alleged misrepresentations and omissions was in the price of Valeant stock or options on each day during the Class Period. An inflation ribbon is a time series of the difference between a security's actual price observed in the marketplace, and the estimated price that the security would have traded at each day had there been full disclosure from the outset of the Class Period. Construction of the inflation ribbon generally employs event study analysis, combined with widely used and generally accepted valuation tools and models. The inflation ribbon is often constructed by working chronologically backwards from the final corrective disclosure to the start of the Class Period, accounting for alleged fraud-related residual price declines as they occurred. Inflation prior to a corrective disclosure that dissipated inflation is greater than the inflation afterward by the amount of inflation that dissipated. The full array of generally accepted and widely used valuation tools can be applied, if necessary, to calculate the but-for security prices under the assumption of prior full disclosure. This analysis would also apply on a class-wide basis.
- iii. Third, the measure of per security damages generally applied in securities cases is the reduction in the inflation ribbon over an investor's holding period (the economic/inflation loss) that was caused by corrective disclosures. That is, for each Class member, per security damages would be calculated as the difference between the inflation on the date the securities were purchased and the inflation on the date those same securities were subsequently sold, excluding any inflation

¹¹⁰ For written put option contracts, the analysis would be performed to determine whether the misrepresentations and omissions negatively affected the security price and the disclosure(s) caused the put price to rise, thereby causing investor losses.

dissipation caused by factors other than corrective disclosure. Per security damages are limited, however, to be no greater than the decline in the security price over the holding period, which is the investment loss actually sustained.

- iv. Pursuant to the Private Securities Litigation Reform Act of 1995 (the “PSLRA”) (15 U.S.C. § 78u-4(e)), for any common stock sold during the 90-day period after the end of the Class Period, per share damages would be calculated as the lesser of the reduction in the dollar inflation over the investor’s holding period (the economic/inflation loss), or the decline in the stock price (the investment loss), respectively, where the terminal stock price is deemed to be the average price from the final corrective disclosure date to the sale date. Also, pursuant to the PSLRA, for any shares held 90 days or more beyond the final corrective disclosure, damages would equal the lesser of the reduction in the dollar inflation over the investor’s holding period (the economic/inflation loss) or the decline in the stock price (the investment loss), where the terminal stock price is deemed to be the average price over the 90 days following the final corrective disclosure.
- v. The calculation of each Class member’s damages would be a mechanical arithmetical exercise, conducted the same way for all Class members, applying the results of the Class-wide analyses described above to each Class member’s trading data.

216. It should be noted that I have not conducted a loss causation analysis at this time and reserve the right to address such issues at the appropriate stage. The loss causation analysis that will be necessary to actually calculate damages in the current case requires the full development of the record.

217. Nonetheless, the methodology discussed herein allows the calculation of individual and class-wide damages stemming from various alleged misrepresentations and omissions and therefore will accommodate alternative potential determinations of liability. Economic analyses (including valuation and empirical event study analysis) can be used to estimate the relationship between specific statements or sets of statements and the subsequent effect on security prices, in

the case of affirmative statements, omissions, and/or corrective disclosures. As such, class-wide damages in response to the specific misrepresentations and omissions ultimately established by the Plaintiffs can be calculated in a straightforward manner common to all Class members. Out-of-pocket damages can be measured as the difference between the amount of price inflation at purchase and the amount of inflation in the price of Valeant's securities at sale taking into account formulaic prescriptions in relevant case law and statutes.

218. I have examined the facts and circumstances of this case and I have identified no particularly unusual facts or circumstances complicating the quantification of artificial inflation and damages. If specific issues or challenges complicating the quantification of artificial inflation and damages are encountered when the damage computation is ultimately undertaken, the standard tools of valuation and attribution analysis can be applied to measure inflation and damages caused by the alleged misrepresentations and omissions according to Plaintiffs' theory of liability. Such valuation analysis is undertaken continuously, every day, for virtually every publicly traded security, and these tools address the very complexities that could potentially be encountered in the course of computing inflation and damages. Among the commonly used valuation tools that are available to investors and analysts in real time, and to forensic analysts when computing damages, are for example: valuation multiple models, such as those based on earnings, EBITDA, revenue, book value, and cash flow; discounted cash flow models (DCF); return attribution analysis; and the literature regarding valuation effects of factors such as reputation and quality of accounting. In addition, forensic analysts have the added benefit of event study analysis, which quantifies price effects when information did reach the market.

219. Consequently, each Class member's damages under Section 10(b) can be computed in the same way respective to each Class members' claims using readily available daily pricing information, in accordance with this widely used and generally accepted methodology.

220. I have not yet been asked to calculate damages for any of the claims alleged on behalf of the Class, and such calculations will likely depend, in part, on the completion of discovery. However, the methodology described above is generally accepted and widely used for calculating damages consistently on a Class-wide basis in securities class actions.

X. SECTION 20A COMMON DAMAGES METHODOLOGY

221. Counsel for Plaintiffs also asked me to opine on whether Section 20A damages can be computed using a common methodology for all Class members who have claims under Section 20A of the Exchange Act.

222. The formula for calculating damages under Section 20A of the Exchange Act is spelled out in the statute:

“Any person who violates any provision of this title [15 USCS §§ 78a et seq.] or the rules or regulations thereunder by purchasing or selling a security while in possession of material, nonpublic information shall be liable in an action in any court of competent jurisdiction to any person who, contemporaneously with the purchase or sale of securities that is the subject of such violation, has purchased (where such violation is based on a sale of securities) or sold (where such violation is based on a purchase of securities) securities of the same class.”

15 USC § 78t-1(a)

“The total amount of damages imposed under subsection (a) shall not exceed the profit gained or loss avoided in the transaction or transactions that are the subject of the violation.”

15 USC § 78t-1(b)(1)

223. Therefore, to compute 20A damages, one would identify when any defendant sold securities during the Class Period at an inflated price and measure the loss avoided equal to the decline in the security price between the date of such sale and the later date when inflation was fully dissipated on account of corrective disclosure. The decline in price over this period is the per security loss avoided. The total loss avoided for such securities would be the number of securities sold multiplied by the per security loss avoided.

224. If a defendant took a short position in Valeant securities, either a direct short position in the stock or a short exposure via written call options or purchased put options, the profit gained when the price fell would be the increase in the value of that position between the time the short position was opened and the date when either the position was closed via reversing transactions, or the date of full corrective disclosure that dissipated the artificial inflation in the security price, whichever occurred first.

225. Consistent with the statute terms presented above, compensable damages to persons who contemporaneously bought or sold Valeant securities would be the losses sustained or profits deprived, computed in similar fashion as defendants' profits gained and losses avoided. That is, a sustained loss would be the decline in the value of the Valeant security position between the contemporaneous time of purchase and the later sale date, or the date of full corrective disclosure that dissipated the artificial inflation in the security price, whichever occurred first. A deprived profit would occur if an investor closed a short position (comprising any combination of short stock, purchased put options, and/or written call options) contemporaneously with a defendant opening a short position. The investor's deprived profit would be the increase in the value of the short position between the time the investor closed the short position and what that position would

have been had it been held open until the full corrective disclosure that dissipated the artificial inflation in the stock price.

226. Should it be that the aggregate sum of defendants' losses avoided and profits gained is less than the aggregate sum of Class Members' losses sustained and deprived profits, the aggregate sum of defendants' loss avoided and profits gained can be allocated to Class Members on a pro-rata basis.

227. The profits gained by the defendants and/or losses avoided by the defendants does not depend on any individual investor's circumstances. Similarly, the loss sustained and/or the deprived profit suffered by any investor only depends on the investor's holdings of Valeant securities and the prices of those securities. Consequently, the computation of damages under Section 20A of the Exchange Act is common to all investors.

228. I understand that different courts have defined "contemporaneous" trading differently, but the 20A damage computation methodology described here is common to all Class Members regardless of whatever definition is used.

XI. SECTION 11 PER SHARE DAMAGES FOR VALEANT COMMON STOCK

229. According to Section 11 of the Securities Act, statutory damages to investors are computed as follows:

“[T]he difference between the amount paid for the security (not exceeding the price at which the security was offered to the public) and (1) the value thereof as of the time such suit was brought, or (2) the price at which such security shall have been disposed of in the market before suit, or (3) the price at which such security shall have been disposed of after suit but before judgment if such damages shall be less difference between the amount paid for the security (not exceeding the price at which the security was offered to the public) and the value thereof as of the time such suit was brought.”
Section 11 of the Securities Act of 1933.

230. As detailed in the excerpt from the statute above, Section 11 damages for any particular investor depend on several considerations that can be determined in the claims process, including: (i) when the stock was purchased or acquired; (ii) the price at the time of purchase; (iii) whether the stock was sold, and if so, when it was sold and for how much; and/or (iv) if held on the date of suit, the value of the stock on that date.

231. For any individual Class member, that investor's recoverable loss under the statutory formula would be, for each share purchased, the difference between the lesser of (A) the investor's (i) actual purchase price of the share or (ii) the price of the offering, and (B) the investor's (i) the value of the shares on the day suit was brought if the investor continued to hold the shares on the day suit was brought, or (ii) actual sale price if the shares were sold prior to the date suit was brought, or (iii) the actual sale price if the shares were sold after the date of suit but before judgment, if the sale price was less than the price of the offering and greater than the value on the date of suit.

A. The March 2015 Offering

232. On 17 March 2015, the Company announced that it had priced an initial public offering of 7,286,432 shares of common stock at \$199.00 per share.¹¹¹ The Company stated that it “expect(s) to use the net proceeds of this offering, together with the Incremental Term Loans, the Acquisition Senior Notes and cash on hand, to fund (i) the transactions contemplated by the [Salix] Merger Agreement, (ii) the repayment of all outstanding loans and termination of commitments under Salix's existing credit facilities, (iii) the redemption of Salix's 6.00% Senior Notes due 2021, (iv) the payment of any cash consideration necessary upon the conversion of Salix's 1.5%

¹¹¹ “Valeant Pharmaceuticals Prices Offering Of \$1.45 Billion Of Common Shares,” *PR Newswire*, 17 March 2015.

Convertible Senior Notes due 2019 and 2.75% Convertible Senior Notes due 2015 and (v) certain fees and expenses related to the Transactions.”¹¹²

233. On the initial filing date of the Section 11 claims in this lawsuit, 24 June 2016, Valeant’s share price was \$20.27. The difference between the \$199.00 per share offering price and the \$20.27 per share value on 24 June 2013 amounts to \$178.73 per share.

1. Examples of Section 11 Per Share Damages Computation

234. To illustrate how recoverable damages are computed for an investor who purchased shares in the March 2015 Offering and sold prior to the date of suit, assume an investor purchased 1,000 Valeant Common shares on 17 March 2015 for \$199.00 per share and sold those shares on 16 March 2016 for \$33.54 per share. According to the statute, this investor’s recoverable losses are \$165.46 per share, the difference between the \$199.00 offering price and the \$33.54 per share selling price. For this transaction, absent Defendants proving negative causation, this investor’s recoverable losses amount to \$165,460 (\$165.46 per share multiplied by 1,000 shares).

235. For investors who sold after the date of suit, or continue to hold those shares today, statutory damages are the difference between the \$199.00 per share offering price and the \$20.27 share value on the date the suit was brought, or \$178.73 per share.

236. In the absence of a showing by Defendants of negative causation, it is my opinion that the full measure of damages would be applied to all purchases traceable to the March 2015 Offering. It is my understanding that to date, Defendants have not provided any evidence or proffered any expert testimony in support of negative causation. I reserve the right to address such

¹¹² Valeant Pharmaceuticals International Inc., Form 424B5, filed 18 March 2015.

affirmative defenses in a rebuttal report if Defendants decide to proffer any evidence in support thereof.

237. Damages can be calculated for each Class member in the common formulaic manner presented above.

XII. LIMITING FACTORS AND OTHER ASSUMPTIONS

238. This report is furnished solely for the purpose of court proceedings in the above referenced matter and may not be used or referred to for any other purpose. The analysis and opinions contained in this report are based on information available as of the date of this report. I reserve the right to supplement or amend this report, including in the event additional information becomes available.



Steven P. Feinstein, Ph.D., CFA

XIII. APPENDIX-1: LOGARITHMIC RETURNS

- A-1. Logarithmic returns, rather than percent change returns are commonly used in stock return regressions and event study analysis and were used in the regression modeling here. The formula for a logarithmic return is:

$$R_t = \ln \left(\frac{P_t + d_t}{P_{t-1}} \right)$$

where:

R_t is the logarithmic return on day t ;
 P_t is the stock price at the end of day t ;
 P_{t-1} is the stock price from the previous day, day $t-1$;
 d_t is the dividend on day t , if any.

- A-2. The formula for converting a logarithmic return into a dollar return is:

$$DR_t = P_{t-1} \cdot (e^{R_t} - 1)$$

where:

DR_t is the dollar return on day t ;
 P_{t-1} is the stock price from the previous day, day $t-1$;
 e is natural e (approximately 2.7);
 R_t is the logarithmic return on day t .

- A-3. If a security falls from \$20 to \$18, the percent change in price is -10%, equal to the \$2 decline divided by the original \$20 price. The logarithmic return, however, is -10.54%, equal to $\ln(\$18/\$20)$.
- A-4. The logarithmic return relates a price change to an average of the original, final, and intervening prices over the course of a price decline. As such, for large price declines, it is possible for a logarithmic price decline to exceed 100%, since the price decline may be greater than the average of the beginning and ending prices.
- A-5. An attractive feature of a logarithmic return is that it can be decomposed into contributing factors linearly. That is, the portion of a logarithmic return caused by company-specific information is isolated by subtracting from the total logarithmic return the portion of the total return caused by market and peer group factor.

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- “Valeant Pharmaceuticals International, Inc. Jefferies Autumn Global Healthcare Conference,” Thomson Reuters, conference call, 18 November 2015.
- “Valeant: An Enduring Engine for Growth,” Thomson Reuters, presentation, 16 December 2015.
- “Valeant Pharmaceuticals International, Inc. Investor Day,” Thomson Reuters, conference call, 16 December 2015.

Documents and Other Information Considered

- “Valeant Pharmaceuticals International, Inc. at JPMorgan Healthcare Conference,” Thomson Reuters, conference call, 13 January 2016.
- “Q4 2015 Valeant Pharmaceuticals International, Inc. Earnings Conference Call,” Thomson Reuters, conference call, 15 March 2016.

DATA AND DATABASES

- Bloomberg
- Capital IQ
- CRSP (Center for Research in Security Prices)
- Factiva
- Factset
- Federal Reserve Economic Data
- iVolatility
- Thomson Eikon

LEGAL CASES

- *Amgen Inc., et al. v. Connecticut Retirement Plans*, 133 S. Ct. 1184, 1190 (2013).
- *Basic, Inc. v. Levinson*, 485 U.S. (1988).
- *Cammer v. Bloom*, 711 F. Supp. 1264 (N.J., 1989).
- *Cheney v. CyberGuard Corp.*, 213 F.R.D. 484 (S.D. Fla. 2003).
- *City Of Cape Coral Municipal Firefighters’ Retirement Plan, Et Al., v. Emergent Biosolutions, Inc., Hq, Et Al.*, 16-cv-2625, 2018 WL 2840420.
- *Halliburton Co. Et Al. v. Erica P. John Fund, Inc.*, 573 U. S. 10 (2014).
- *Krogman v. Sterritt*, 202 F.R.D. 467 (N.D.Tex. 2001).
- *Lehocky v. Tidel Tech., Inc.*, 220 F.R.D. 491 (S.D. Tex. 2004).
- *Lumen v. Anderson*, No. 08-0514-CV-W-HFS (W.D. Mo. Feb. 10, 2012).
- *McIntire v. China Media Express Holdings, Inc.*, 38 F. Supp. 2d 415 (S.D.N.Y. 2014).
- *In re Petrobras Securities Litigation*, No. 14-cv-9662 (JSR) (S.D.N.Y. Feb. 2, 2016).
- *Unger v. Amedisys*, 401 F.3d 316 (5th Cir. 2005).
- *Vinh Nguyen v. Radiant Pharm. Corp.*, 287 F.R.D. 563, 573 (C.D. Cal. 2012).
- *Waggoner v. Barclays PLC*, 875 F.3d 79 (2d Cir. 2017).

Documents and Other Information Considered

OTHER

- “Brief of Testifying Economists as Amici Curiae in Support of Respondent,” *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc., FKA Archdiocese of Milwaukee Supporting Fund, Inc.*, 5 February 2014
- “Brief of Financial Economists as Amici Curiae in Support of Respondents,” *Halliburton Co. and David Lesar v., Erica P. John Fund, Inc.*, 5 February 2014.
- “Fact Sheet; Designated Market Makers,” NYSE Euronext, 2012.
- “Float Adjustment Methodology,” *S&P Dow Jones Indices*, July 2012.
- “Nasdaq to Enable Customers to Trade NYSE Stocks,” *Reuters*, 28 March 2005.
- “Revisions to the Eligibility Requirements for Primary Securities Offerings on Forms S-3 and F-3,” SEC Release No. 33-8878, 19 December 2007.
- Private Securities Litigation Reform Act of 1995 (15 U.S.C. § 78u-4(e)).
- SEC Rule 10b-5.
- Section 10(b) of the Exchange Act of 1934.
- Section 11 of the Securities Act of 1933.
- Section 20A of the Exchange Act of 1934.
- Other documents cited in my report.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

Babson College
Finance Division
Babson Park, MA 02457
781-239-5275
Feinstein@Babson.edu

EDUCATION

- 1989 YALE UNIVERSITY
Ph.D. in Economics (Concentration in Finance)
- 1986 YALE UNIVERSITY
M.Phil. in Economics
- 1983 YALE UNIVERSITY
M.A. in Economics
- 1981 POMONA COLLEGE
B.A. in Economics (Phi Beta Kappa, *cum laude*)

TEACHING EXPERIENCE

- 1996 - present BABSON COLLEGE
Babson Park, MA
Full-time Faculty, Finance Division
Associate Professor (2000-present)
Donald P. Babson Chair in Applied Investments (2002-2010)
Faculty Director of the Babson College Fund (2002-2009)
Director of the Stephen D. Cutler Investment Management Center
(2002-2007)
Assistant Professor (1996-2000)
- 1990 - 1995 BOSTON UNIVERSITY SCHOOL OF MANAGEMENT
Boston, MA
Full-time Faculty, Department of Finance
- 1993 - 1994 WASHINGTON UNIVERSITY, OLIN SCHOOL OF BUSINESS
St. Louis, MO
Visiting Assistant Professor, Department of Finance

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**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

BUSINESS EXPERIENCE

2008 - present	CROWNINSHIELD FINANCIAL RESEARCH, INC. Brookline, MA President and Senior Expert
1996 - 2008	THE MICHEL-SHAKED GROUP Boston, MA Senior Expert (2001 - 2008) Affiliated Expert (1996 - 2001)
1987 - 1990	FEDERAL RESERVE BANK OF ATLANTA Economist

PROFESSIONAL DESIGNATIONS

1998 Awarded the Chartered Financial Analyst designation by the Association for Investment Management and Research.

RESEARCH AWARDS

1999 Greater Boston Real Estate Board/Real Estate Finance Association – Research Grant and Featured Speaker at Real Estate Finance Association Meetings.

PAPERS AND PUBLICATIONS

“What A Solar Eclipse Has To Do With Market Efficiency,” (with Daniel Bettencourt) *Law360.com*, 2017.

“Underestimation of Securities Fraud Aggregate Damages Due to Inter-Fund Trades,” (with Gang Hu, Mark Marcus, and Zann Ali) *Journal of Forensic Economics*, September 2013, Vol. 24, No. 2, 161-173.

“Lehman Equity Research Tipping: Evidence in the Stock Price Data,” Working paper, March 2010. Cited in *New York Times* May 19, 2012, and made available on the *New York Times* website.

“Distortion in Corporate Valuation: Implications of Capital Structure Changes,” (with Allen Michel and Jacob Oded) *Managerial Finance*, 2011, Vol. 37(8), 681-696.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Market Signals of Investment Unsuitability,” (with Alexander Liss and Steven Achatz) Law360.com, June 3, 2010. Available from <http://www.law360.com/articles/170690>.

“Planning Capital Expenditure,” in *The Portable MBA in Financing and Accounting*, J. L. Livingstone and T. Grossman, editors, New York: Wiley, 3rd edition 2001, and 4th edition 2009.

“Financial Management of Risks,” in *The Portable MBA in Financing and Accounting*, J. L. Livingstone and T. Grossman, editors, New York: Wiley, 2nd edition 1997, 3rd edition 2001, and 4th edition 2009.

“Fraud-on-the-Market Theory: Is a Market Efficient?” (with Allen Michel and Israel Shaked) *American Bankruptcy Institute Journal*, May 2005.

“Valuation of Credit Guarantees,” (with Allen J. Michel and Israel Shaked). *Journal of Forensic Economics* 17(1), pp. 17-37, 2005.

“A Better Understanding of why NPV Undervalues Managerial Flexibility,” (with Diane Lander) in *The Engineering Economist*, 2002, Volume 47, Number 4.

“Teaching the Strong-Form Efficient Market Hypothesis: A Classroom Experiment,” *Journal of Financial Education*, fall 2000.

A Future for Real Estate Futures: Potential Applications of Derivatives in Real Estate Investment and Finance (with Linda Stoller). Monograph. Boston: Real Estate Finance Association / Greater Boston Real Estate Board, May 2000.

“The Risk Budget: Using Your Human Resources,” (with John Marthinsen and John Edmunds) *Risk Management*, April 2000.

“Scenario Learning: A Powerful Tool for the 21st Century Planner,” (with Jeffrey Ellis and Dennis Stearns) *The Journal of Financial Planning*, April 2000.

“Protecting Future Product Liability Claimants in the Case of Bankruptcy,” (with Allen Michel and Israel Shaked) *American Bankruptcy Institute Journal*, January 2000.

“Measuring Risk with the Bodie Put When Stocks Exhibit Mean Reversion,” *The Journal of Risk*, Vol. 1, No. 3, 1999.

“Just-in-Time Mathematics: Integrating the Teaching of Finance Theory and Mathematics,” (with Gordon Prichett) *Primus*, Vol. IX, No. 2, June 1999.

Atlanta Park Medical Center v. Hamlin Asset Management. (with Natalie Taylor). Babson Case Collection, Harvard Business School Press, 1998.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Dealing with Delta,” *Derivatives Week*, VII, No. 44, November 2, 1998.

“Expected Return in Option Pricing: A Non-Mathematical Explanation,” *Derivatives Week*, VII, No. 35, August 31, 1998.

“When Hedges Fail: The Put Paradox and its Solution,” *Derivatives Quarterly*, Vol. 4, No. 2, Winter 1997.

Finance and Accounting for Project Management. New York: American Management Association, 1996.

“International Investing,” in *Irwin’s Directory of Emerging Market Brokerages*. New York: Irwin, 1996.

“The Hull and White Implied Volatility,” Boston University Working Paper #92-51, 1992.

“Immunizing Against Interest Rate Risk Using the Macaulay Duration Statistic: An Assessment,” (with Don Smith) in *Financial Systems and Risk Management*, the proceedings of the US-Japan Forum on Financial Strategy in the 1990s, sponsored by Osaka Foundation of International Exchange and Boston University, August 1991.

“Covered Call Options: A Proposal to Ease LDC Debt,” (with Peter Abken) *Federal Reserve Bank of Atlanta Economic Review*, March/April 1990. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“Forecasting Stock-Market Volatility Using Options on Index Futures,” *Federal Reserve Bank of Atlanta Economic Review*, May/June 1989. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“The Black-Scholes Formula is Nearly Linear in Sigma for At-the-Money Options; Therefore Implied Volatilities from At-the-Money Options are Virtually Unbiased,” Federal Reserve Bank of Atlanta Working Paper #88-9, December 1988.

“The Effect of the ‘Triple Witching Hour’ on Stock Market Volatility,” (with William Goetzmann) *Federal Reserve Bank of Atlanta Economic Review*, September/October 1988. Reprinted in *Financial Derivatives: New Instruments and Their Uses*. Atlanta: Federal Reserve Bank.

“Stock Market Volatility,” *Federal Reserve Bank of Atlanta Economic Review*, November/December 1987.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

Book review of *In Who's Interest: International Banking and American Foreign Policy*, by Benjamin J. Cohen, Yale University Press, in *Federal Reserve Bank of Atlanta Economic Review*, Summer 1987.

PRESENTATIONS

“Stock Price Reactivity to Earnings Announcements: A Cross-Sectional Analysis of the *Cammer/Krogman* Factors,” (with Miguel Villanueva) at the Boston Area Finance Symposium, April 2018.

“Stock Price Reactivity to Earnings Announcements: A Cross-Sectional Analysis of the *Cammer/Krogman* Factors,” (with Miguel Villanueva) at the Eastern Finance Association Conference, April 2018.

“Determining the Defendant's Ability to Pay,” at Taxpayers Against Fraud Education Fund Conference, October 2010.

“The Computation of Damages in Securities Fraud Cases,” at the Grant and Eisenhower Institutional Investor Conference, December 2002.

“The Role of the Financial Expert in Complex Litigation,” at the Financial Management Association Conference, October 2000.

“Entrepreneurial Incentives and Resource Allocation Among Corporate Venturing Initiatives,” (with Joel Shulman and U. Srinivasa Rangan), Babson Entrepreneurship Research Conference, May 2000.

“Application of Real Options in Purchasing Strategies,” (with Juan Orozco), presented at the International Applied Business Research Conference, March 2000.

“A Future for Real Estate Futures,” (with Linda Stoller) at the Fairfield County chapter of the Real Estate Finance Association, November 1999, and at the Greater Boston Real Estate Board, November 2000.

“Atlanta Park Medical Center v. Hamlin Asset Management,” (with Natalie Taylor) at the 1999 convention of the North American Case Research Association.

“Using Future Worlds™ in the Financial Planning Process,” (with Jeffrey Ellis) at the Institute of Certified Financial Planners Masters Retreat, October 1999.

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**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

“Toward a Better Understanding of Real Options: A Weighted Average Discount Rate Approach,” at the 1999 Financial Management Association Conference, the 1999 European Financial Management Association Conference, and the 1999 Multinational Finance Society Conference.

“Just-In-Time Mathematics: Integrating the Teaching of Finance Theory and Mathematics,” (with Gordon Prichett) at the 1999 Financial Management Association Conference.

“Alternative Dow Investments for the Individual Investor: Diamonds, Synthetics, and the Real Thing,” at the 1999 Academy of Financial Services Convention.

“Evidence of Yield Burning in Municipal Refundings,” at Financial Management Association Convention, October 1997; Government Finance Officers Association, 1997; and Northeast Regional Convention of the National Association of State Treasurers, 1997.

“Teaching the Strong-Form Efficient Market Hypothesis,” at Conference on Classroom Experiments in the Teaching of Economics at University of Virginia, September 1995.

“Efficient Consolidation of Implied Standard Deviations,” (with Shaikh Hamid) at Midwest Finance Association, March 1995.

“A Test of Intertemporal Averaging of Implied Volatilities,” (with Shaikh Hamid) at Eastern Finance Association, April 1995.

“Taking Advantage of Volatility: Non-linear Forecasting and Options Strategies,” (with Hassan Ahmed) at Chicago Board of Trade / Chicago Board Options Exchange Conference on Risk Management, February 1992.

“Immunizing Against Interest Rate Risk Using the Macaulay Duration Statistic: An Assessment,” (with Don Smith) at Japan-U.S. Conference on Financial Strategies in the 1990s, Osaka, Japan, August 1991.

“The Hull and White Implied Volatility,” at American Finance Association Convention, December 1990.

REVIEWED ARTICLES AND BOOKS FOR:

Harvard Business School Publishing
Elsevier
Journal of Economic Education
Journal of Forensic Economics
Journal of Risk

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

Financial Review
North American Case Research Association
Financial Management
Journal of Business
Journal of Money, Credit and Banking
Quarterly Review of Economics and Finance
Blackwell
Prentice Hall
Southwestern Publishing

COURSES TAUGHT

Capital Markets
Mod B: Decision Making and Applications, Finance stream (MBA)
Financial Reporting and Corporate Finance (MBA)
Valuation (MBA)
Investments (MBA and Executive)
Equity Markets (MBA)
Fixed Income Analysis (Undergraduate and MBA)
Babson College Fund (Undergraduate and MBA)
Options and Futures (Undergraduate)
Advanced Derivative Securities (MBA)
Corporate Finance (MBA and Executive)
Financial Management (MBA)
Risk Management (MBA)
Corporate Financial Strategy (MBA)
Integrated Management (Undergraduate)
Cross-Functional Management (Integrated curriculum, Undergraduate)
Continuous-Time Finance (Doctoral)
Portfolio Theory / Management Information Systems (Executive)
Quantitative Methods for Investment Management (Undergraduate and MBA)
Introduction to Derivative Securities (Executive)
International Finance (Executive)

TEACHING AWARDS

Reid Teaching Award, Washington University, Olin School of Business, 1993-94.

Exhibit-2

**Curriculum Vitae
Steven P. Feinstein, Ph.D., CFA**

SELECT LIST OF MEDIA CITATIONS

“Is Insider Trading Part of the Fabric?” by Gretchen Morgenson, *The New York Times*, May 19, 2012.

“Bankers Rigging Municipal Contract Bids Admit to Cover-Up Lies,” by William Selway and Martin Z. Braun, *Bloomberg Markets Magazine*, November 24, 2010.

“Hospital Move Presents Buy-Out Groups with New Risks,” by Francesco Guerra, Christopher Bowe, and Rebecca Knight, *Financial Times*, July 15, 2006.

“Funds of Knowledge Add Value,” by Rebecca Knight, *Financial Times*, March 12, 2006.

“City’s Financial Picture Worse Than Ever, Sanders Says,” by Matthew T. Hall, *San Diego Union-Tribune*, January 7, 2006.

“Downer: Stock Market Takes Another Dive,” by John Chesto, *Boston Herald*, July 23, 2002.

“Banks, Developers, Are Main Beneficiaries,” [editorial column] by Steven Feinstein, *The Boston Globe*, March 31, 2002, p. C4.

“Washington Investing: What Michael Saylor is Really Worth,” by Jerry Knight, *The Washington Post*, March 6, 2000.

“IBM Retools Pensions,” by Stephanie Armour, *USA Today*, May 4, 1999.

“L.A. MTA’s Law Firm Says Lissack Strategy Will be a Replay,” by Andrea Figler, *Bond Buyer*, September 30, 1998.

“Fed Key Player in Rescue of Floundering Hedge Fund,” by Andrew Fraser, Associated Press, September 25, 1998.

“Top Banks Plan Bailout for Fund,” by Andrew Fraser, Associated Press, September 24, 1998.

“Clarion Call to the Small Investor,” by Jo-Ann Johnston, *The Boston Globe*, March 4, 1998.

“L.A. Authority Study Shows Rampant Yield Burning Abuse,” by Michael Stanton, *The Bond Buyer*, April 22, 1997.

Exhibit-2

Curriculum Vitae

Steven P. Feinstein, Ph.D., CFA

“Dispute Over Yield Burning Dominates GFOA Session,” by Michael Stanton, *The Bond Buyer*, January 29, 1997.

“Men Behaving Badly (Yield Burning),” *Grants Municipal Bond Observer*, January 24, 1997.

“Municipal Bond Dealers Face Scrutiny,” by Peter Truell, *The New York Times*, December 17, 1996.

“Iowa Market Takes Stock of Presidential Candidates,” by Stanley W. Angrist, *The Wall Street Journal*, August 28, 1995.

“Looking for Clues in Options Prices,” by Sylvia Nasar, *The New York Times*, July 18, 1991.

“For Fed, A New Set of Tea Leaves,” by Sylvia Nasar, *The New York Times*, July 5, 1991.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Finance Association
CFA Society Boston
Chartered Financial Analyst Institute
Financial Management Association
Foundation for Advancement of Research in Financial Economics (founding member)
National Association of Forensic Economics
North American Case Research Association

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

Mary K. Jones, et al., vs. Pfizer Inc., et al.
United States District Court
Southern District of New York
Civil Action no. 10-cv-03864-AKH
Deposition Testimony
January 2012 and October 2014

In Re Questcor Pharmaceuticals, Inc. Securities Litigation
Civil Action No. 12-cv-01623-DMG
United States District Court
Central District of California
Deposition Testimony
October 2014

In Re Longtop Financial Technologies, Ltd. Securities Litigation
Civil Action No. 11-cv-3658-SAS
United States District Court
Southern District of New York
Trial Testimony
November 2014

In Re Delcath Systems, Inc. Securities Litigation
Civil Action No. 13 Civ. 3116 (LGS)
United States District Court
Southern District of New York
Deposition Testimony
December 2014

In Re Prudential Financial, Inc. Securities Litigation
Civil Action No. 2:12-cv-05275-SDW-MCA
United States District Court
District of New Jersey
Deposition Testimony
January 2015

In Re Walter Energy, Inc. Securities Litigation
Civil Action No. 2:12-cv-00281-VEH
United States District Court
Northern District of Alabama
Deposition Testimony
January 2014 and March 2015

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re CVS Caremark Corporation Securities Litigation
Civil Action No. 1:09-cv-00554-S-DLM
United States District Court
District of Rhode Island
Deposition Testimony
March 2015

In Re JPMorgan Chase & Co. Securities Litigation
Civil Action No. 1:12-cv-03852-GBD
United States District Court
Southern District of New York
Deposition Testimony
March 2015

In Re Baxter International Inc., et al. Securities Litigation
Civil Action No. 1:10-cv-06016
United States District Court
Northern District of Illinois Eastern Division
Deposition Testimony
November 2014 and May 2015

In Re Goldman, Sachs & Co., et al. Securities Litigation
Civil Action No. 10 Civ. 4429 (MGC)
United States District Court
Southern District of New York
Deposition Testimony
June 2015

In Re United States of America, et al. v. Frank Kurnik and Pharmerica Corp., et al.
Case No. 3:11-cv-1464-JFA
United States District Court
District South Carolina
Deposition Testimony
June 2015

In Re HCA Holdings, Inc., Securities Litigation
Civil Action No. 3:11-cv-01033
United States District Court
Middle District of Tennessee
Nashville Division
Deposition Testimony
June 2015

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re Claude A. Reese, et al. v. Robert A. Malone, et al.
Civil Action No. C08-1008 MJP
United States District Court
Western District of Washington at Seattle
Deposition Testimony
June 2015

In Re Bridgepoint Education, Inc. Securities Litigation
Civil Action No. 3:12-cv-01737-JM-JLB
United States District Court
Southern District of California
Deposition Testimony
July 2015

In Re Dana Corporation, et al. Securities Litigation
Civil Action No. 3:05-cv-07393-JGC
United States District Court
Northern District of Ohio
Deposition Testimony
June 2015 and August 2015

In Re Las Vegas Sands Corp. Securities Litigation
Civil Action No. 2:10-cv-00765-KJD-LRL
United States District Court
District of Nevada
Deposition Testimony
March 2015 and December 2015

In Re Groupon, Inc. Securities Litigation
Civil Action No. 12-cv-2450
United States District Court
Northern District of Illinois
Deposition Testimony
February 2014 and December 2015
Testimony at Evidentiary Hearing
September 2014

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re: Petrobras Securities Litigation
Case No. 14-cv-9662 (JSR)
United States District Court
Southern District of New York
Deposition Testimony
October 2015 and December 2015
Testimony at Evidentiary Hearing
December 2015

In Re Symbol Technologies, Inc. Securities Litigation
Civil Action No. 05-cv-3923-DRH
United States District Court
Eastern District of New York
Deposition Testimony
June 2014 and January 2016

In Re KBR, Inc. Securities Litigation
Case No. 4:14-CV-01287
United States District Court
Southern District of Texas
Deposition Testimony
April 2016

In Re: Petrobras Securities Litigation
Case No. 15-cv-04226 (JSR)
Case No. 15-cv-03923 (JSR)
Case No. 15-cv-03911 (JSR)
United States District Court
Southern District of New York
Deposition Testimony
June 2016

In Re World Acceptance Corporation Securities Litigation
Case No. 6:14-cv-01606
United States District Court
District of South Carolina
Deposition Testimony
February 2017

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re Silver Wheaton Corp. Securities Litigation
Case No. 4 2:15-cv-05146
United States District Court
Central District of California
Deposition Testimony
February 2017

In Re Medtronic, Inc. Securities Litigation
Master File No. 0:13-cv-01686-JRT-FLN
United States District Court
District of Minnesota
Deposition Testimony
April 2017

In Re LSB Industries, Inc. Securities Litigation
Master File No. 1:15-cv-07614-RA
United States District Court
Southern District of New York
Deposition Testimony
June 2017

In Re Resource Capital Corp. Securities Litigation
Master File No. 1:15-cv-07081-LLS
United States District Court
Southern District of New York
Deposition Testimony
July 2017

In Re American Realty Capital Properties Inc. Securities Litigation
Master File No. 1:14-cv-08668-ER
United States District Court
Southern District of New York
Deposition Testimony
June 2017
Testimony at Evidentiary Hearing
August 2017

In Re Marvell Technology Group, Ltd. Securities Litigation
Master File No. 5:15-cv-05447-WHA
United States District Court
Northern District of California
Deposition Testimony
August 2017

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re Eletrobras Securities Litigation
Master File No. 1:15-cv-5754-JGK
United States District Court
Southern District of New York
Deposition Testimony
September 2017

In Re Insulet Corporation Securities Litigation
Master File No. 15-12345-MLW
United States District Court
District of Massachusetts
Deposition Testimony
October 2017

In Re Deutsche Bank AG Securities Litigation
Master File No. 1:09-cv-01714-DAB
United States District Court
Southern District of New York
Deposition Testimony
January 2018

Daniel Turocy, et al., v. El Pollo Loco Holdings. Inc., et al.
Case No. 8:15-cv-01343-DOC-KES
United States District Court
Central District of California
Deposition Testimony
February 2018

In Re Federal Home Loan Mortgage Corporation Securities Litigation
Master File No. 4:08-cv-00160-BYP
United States District Court
Northern District of Ohio Eastern Division
Deposition Testimony
August 2017
Deposition Testimony
November 2017
Testimony at Evidentiary Hearing
April 2018

Exhibit-3

Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years

In re BHP Billiton Limited Securities Litigation
Civil Action No. 1:16-cv-01445-NRB
United States District Court
Southern District New York
Deposition Testimony
April 2018

In Re Medtronic, Inc. Securities Litigation
Master File No. 0:13-cv-01686-JRT-FLN
United States District Court
District of Minnesota
Deposition Testimony
May 2018

In Re Puma Biotechnology, Inc. Securities Litigation
Case No. 8:15-cv-00865-AG-JLG
United States District Court
Central District of California
Deposition Testimony
April 2017
Deposition Testimony
June 2018

In Re Community Health Systems Securities Litigation
Case No. 11-cv-0433
United States District Court
Middle District of Tennessee
Deposition Testimony
June 2018

In Re Orbital ATK, Inc. Securities Litigation
Case No. 1:16-cv-01031-TSE-MSN
United States District Court
Eastern District of Virginia
Deposition Testimony
July 2018

In Re Correction Corporation of America Securities Litigation
Case No. 3:16-cv-02267
United States District Court
Middle District of Tennessee
Deposition Testimony
July 2018

Exhibit-3

**Steven P. Feinstein, Ph.D., CFA
Testimony in the Last Four Years**

In Re Blackberry Limited Securities Litigation
Case No. 1:13-cv-7060-TPG
United States District Court
Southern District of New York
Deposition Testimony
July 2018

In Re SunEdison, Inc. Securities Litigation
Case No. 16-md-2742-PKC
United States District Court
Southern District of New York
Deposition Testimony
July 2018

In Re Flower Foods, Inc. Securities Litigation
Case No. 7:16-CV-00222-WLS
United States District Court
Middle District of Georgia
Valdosta Division
September 2018

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
1/3/2012	\$47.97	\$47.96	\$47.97	1,790,100	
1/4/2012	\$46.69	\$46.69	\$46.71	1,486,800	-2.70%
1/5/2012	\$47.16	\$47.17	\$47.18	2,494,900	1.00%
1/6/2012	\$47.48	\$47.45	\$47.47	5,085,900	0.68%
1/9/2012	\$49.03	\$49.00	\$49.01	2,853,400	3.21%
1/10/2012	\$49.72	\$49.71	\$49.72	4,554,800	1.40%
1/11/2012	\$48.71	\$48.72	\$48.73	2,614,300	-2.05%
1/12/2012	\$49.38	\$49.38	\$49.39	3,720,500	1.37%
1/13/2012	\$49.19	\$49.19	\$49.20	2,194,300	-0.39%
1/17/2012	\$50.98	\$50.92	\$50.94	5,768,600	3.57%
1/18/2012	\$50.97	\$50.99	\$51.00	1,937,600	-0.02%
1/19/2012	\$51.34	\$51.33	\$51.34	1,995,500	0.72%
1/20/2012	\$50.91	\$50.91	\$50.92	2,506,100	-0.84%
1/23/2012	\$50.54	\$50.54	\$50.55	1,666,900	-0.73%
1/24/2012	\$49.78	\$49.79	\$49.80	2,549,100	-1.52%
1/25/2012	\$50.72	\$50.69	\$50.70	1,270,900	1.87%
1/26/2012	\$49.22	\$49.21	\$49.22	2,566,100	-3.00%
1/27/2012	\$49.17	\$49.17	\$49.18	1,047,500	-0.10%
1/30/2012	\$48.74	\$48.75	\$48.76	1,265,800	-0.88%
1/31/2012	\$48.49	\$48.48	\$48.49	1,359,400	-0.51%
2/1/2012	\$50.46	\$50.48	\$50.50	2,202,500	3.98%
2/2/2012	\$50.08	\$50.05	\$50.06	1,004,500	-0.76%
2/3/2012	\$50.50	\$50.51	\$50.52	1,143,600	0.84%
2/6/2012	\$50.13	\$50.13	\$50.14	1,225,000	-0.74%
2/7/2012	\$49.77	\$49.77	\$49.78	711,700	-0.72%
2/8/2012	\$49.57	\$49.54	\$49.55	820,200	-0.40%
2/9/2012	\$48.49	\$48.51	\$48.52	2,295,600	-2.20%
2/10/2012	\$47.91	\$47.88	\$47.89	1,036,100	-1.20%
2/13/2012	\$48.45	\$48.43	\$48.44	2,221,100	1.12%
2/14/2012	\$48.49	\$48.49	\$48.50	949,800	0.08%
2/15/2012	\$48.23	\$48.26	\$48.27	1,420,200	-0.54%
2/16/2012	\$47.98	\$47.99	\$48.00	1,251,500	-0.52%
2/17/2012	\$47.39	\$47.39	\$47.40	1,436,100	-1.24%
2/21/2012	\$46.56	\$46.55	\$46.56	3,114,000	-1.77%
2/22/2012	\$46.49	\$46.47	\$46.48	1,927,100	-0.15%
2/23/2012	\$47.55	\$47.54	\$47.55	1,349,700	2.25%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
2/24/2012	\$47.93	\$47.95	\$47.96	1,710,000	0.80%
2/27/2012	\$50.58	\$50.58	\$50.59	4,684,400	5.38%
2/28/2012	\$51.08	\$51.08	\$51.09	1,562,600	0.98%
2/29/2012	\$52.91	\$52.91	\$52.92	4,667,400	3.52%
3/1/2012	\$54.32	\$54.31	\$54.32	2,728,500	2.63%
3/2/2012	\$53.85	\$53.85	\$53.86	1,462,500	-0.87%
3/5/2012	\$54.31	\$54.28	\$54.29	1,840,200	0.85%
3/6/2012	\$53.86	\$53.85	\$53.86	1,987,300	-0.83%
3/7/2012	\$54.49	\$54.49	\$54.50	1,818,900	1.16%
3/8/2012	\$55.13	\$55.14	\$55.15	1,335,000	1.17%
3/9/2012	\$55.58	\$55.56	\$55.57	1,092,100	0.81%
3/12/2012	\$54.59	\$54.59	\$54.60	1,148,300	-1.80%
3/13/2012	\$54.57	\$54.56	\$54.57	1,742,900	-0.04%
3/14/2012	\$53.73	\$53.73	\$53.74	1,314,400	-1.55%
3/15/2012	\$54.70	\$54.68	\$54.69	1,724,800	1.79%
3/16/2012	\$53.64	\$53.64	\$53.65	1,285,900	-1.96%
3/19/2012	\$53.80	\$53.80	\$53.81	778,600	0.30%
3/20/2012	\$53.31	\$53.31	\$53.32	885,700	-0.91%
3/21/2012	\$53.72	\$53.71	\$53.72	1,040,600	0.77%
3/22/2012	\$53.07	\$53.04	\$53.05	959,500	-1.22%
3/23/2012	\$53.75	\$53.75	\$53.77	825,000	1.27%
3/26/2012	\$54.61	\$54.61	\$54.62	801,400	1.59%
3/27/2012	\$54.05	\$54.06	\$54.07	949,600	-1.03%
3/28/2012	\$53.69	\$53.68	\$53.69	982,100	-0.67%
3/29/2012	\$53.89	\$53.87	\$53.88	962,300	0.37%
3/30/2012	\$53.69	\$53.71	\$53.72	623,700	-0.37%
4/2/2012	\$54.82	\$54.80	\$54.81	872,400	2.08%
4/3/2012	\$54.46	\$54.47	\$54.48	687,900	-0.66%
4/4/2012	\$54.13	\$54.12	\$54.13	723,900	-0.61%
4/5/2012	\$54.76	\$54.76	\$54.77	738,100	1.16%
4/9/2012	\$53.94	\$53.93	\$53.94	697,100	-1.51%
4/10/2012	\$52.95	\$52.95	\$52.96	1,447,400	-1.85%
4/11/2012	\$52.51	\$52.50	\$52.51	1,098,200	-0.83%
4/12/2012	\$53.71	\$53.71	\$53.72	1,100,600	2.26%
4/13/2012	\$52.80	\$52.81	\$52.83	992,200	-1.71%
4/16/2012	\$53.81	\$53.79	\$53.80	1,191,200	1.89%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
4/17/2012	\$54.91	\$54.91	\$54.93	1,579,900	2.02%
4/18/2012	\$55.31	\$55.30	\$55.31	864,700	0.73%
4/19/2012	\$55.05	\$55.06	\$55.07	1,527,600	-0.47%
4/20/2012	\$55.10	\$55.12	\$55.13	939,300	0.09%
4/23/2012	\$54.94	\$54.94	\$54.95	1,087,700	-0.29%
4/24/2012	\$55.90	\$55.89	\$55.90	1,221,500	1.73%
4/25/2012	\$55.97	\$55.94	\$55.95	1,194,300	0.13%
4/26/2012	\$55.85	\$55.83	\$55.84	882,600	-0.21%
4/27/2012	\$55.94	\$55.97	\$55.98	742,900	0.16%
4/30/2012	\$55.63	\$55.63	\$55.64	728,900	-0.56%
5/1/2012	\$56.30	\$56.29	\$56.30	2,450,500	1.20%
5/2/2012	\$56.45	\$56.44	\$56.45	1,398,400	0.27%
5/3/2012	\$51.24	\$51.23	\$51.24	13,708,800	-9.68%
5/4/2012	\$50.93	\$50.92	\$50.93	3,096,400	-0.61%
5/7/2012	\$52.14	\$52.12	\$52.13	2,712,800	2.35%
5/8/2012	\$52.05	\$52.03	\$52.04	2,497,400	-0.17%
5/9/2012	\$52.25	\$52.25	\$52.26	2,181,400	0.38%
5/10/2012	\$53.17	\$53.16	\$53.17	2,625,000	1.75%
5/11/2012	\$52.94	\$52.93	\$52.94	1,206,400	-0.43%
5/14/2012	\$51.01	\$51.00	\$51.01	1,830,800	-3.71%
5/15/2012	\$49.83	\$49.82	\$49.83	1,746,600	-2.34%
5/16/2012	\$49.16	\$49.16	\$49.17	2,246,800	-1.35%
5/17/2012	\$48.28	\$48.27	\$48.28	3,056,100	-1.81%
5/18/2012	\$47.03	\$47.04	\$47.05	2,485,200	-2.62%
5/21/2012	\$47.19	\$47.19	\$47.20	3,329,800	0.34%
5/22/2012	\$47.78	\$47.77	\$47.78	2,270,100	1.24%
5/23/2012	\$46.65	\$46.64	\$46.65	1,978,000	-2.39%
5/24/2012	\$48.04	\$48.04	\$48.05	1,905,700	2.94%
5/25/2012	\$48.48	\$48.49	\$48.50	1,350,000	0.91%
5/29/2012	\$48.40	\$48.37	\$48.38	896,900	-0.17%
5/30/2012	\$47.92	\$47.92	\$47.93	1,057,700	-1.00%
5/31/2012	\$48.66	\$48.71	\$48.72	2,152,700	1.53%
6/1/2012	\$47.00	\$47.00	\$47.02	2,316,400	-3.47%
6/4/2012	\$46.51	\$46.50	\$46.51	1,695,600	-1.05%
6/5/2012	\$47.48	\$47.47	\$47.48	1,790,500	2.06%
6/6/2012	\$48.28	\$48.27	\$48.28	1,449,700	1.67%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
6/7/2012	\$48.56	\$48.53	\$48.54	1,475,900	0.58%
6/8/2012	\$48.52	\$48.51	\$48.52	1,027,400	-0.08%
6/11/2012	\$46.41	\$46.41	\$46.42	1,609,900	-4.45%
6/12/2012	\$45.99	\$45.99	\$46.00	4,281,300	-0.91%
6/13/2012	\$45.15	\$45.13	\$45.14	2,869,000	-1.84%
6/14/2012	\$45.95	\$45.92	\$45.93	1,945,200	1.76%
6/15/2012	\$44.93	\$44.93	\$44.94	2,398,300	-2.24%
6/18/2012	\$46.31	\$46.29	\$46.30	1,318,500	3.03%
6/19/2012	\$47.84	\$47.84	\$47.85	1,608,800	3.25%
6/20/2012	\$48.24	\$48.23	\$48.24	1,552,600	0.83%
6/21/2012	\$45.23	\$45.24	\$45.25	3,836,700	-6.44%
6/22/2012	\$46.60	\$46.62	\$46.63	1,788,900	2.98%
6/25/2012	\$46.02	\$46.01	\$46.02	984,000	-1.25%
6/26/2012	\$45.94	\$45.94	\$45.95	1,782,900	-0.17%
6/27/2012	\$45.19	\$45.20	\$45.21	1,299,500	-1.65%
6/28/2012	\$43.73	\$43.72	\$43.73	3,811,700	-3.28%
6/29/2012	\$44.79	\$44.80	\$44.81	2,657,000	2.40%
7/2/2012	\$44.96	\$44.93	\$44.94	1,252,200	0.38%
7/3/2012	\$46.99	\$46.94	\$46.95	1,342,700	4.42%
7/5/2012	\$46.83	\$46.83	\$46.84	1,241,800	-0.34%
7/6/2012	\$46.00	\$46.01	\$46.03	863,300	-1.79%
7/9/2012	\$46.19	\$46.19	\$46.20	1,122,000	0.41%
7/10/2012	\$44.87	\$44.90	\$44.91	1,552,400	-2.90%
7/11/2012	\$45.02	\$45.01	\$45.02	1,376,500	0.33%
7/12/2012	\$45.03	\$45.01	\$45.03	2,043,700	0.02%
7/13/2012	\$45.27	\$45.25	\$45.26	1,333,400	0.53%
7/16/2012	\$45.05	\$45.04	\$45.05	1,466,300	-0.49%
7/17/2012	\$47.02	\$47.00	\$47.01	1,421,300	4.28%
7/18/2012	\$47.95	\$47.95	\$47.96	1,810,300	1.96%
7/19/2012	\$47.97	\$47.97	\$47.98	1,408,900	0.04%
7/20/2012	\$47.63	\$47.61	\$47.62	1,508,000	-0.71%
7/23/2012	\$46.00	\$45.98	\$45.99	2,307,400	-3.48%
7/24/2012	\$46.00	\$46.01	\$46.02	2,024,700	0.00%
7/25/2012	\$47.01	\$47.00	\$47.01	1,304,700	2.17%
7/26/2012	\$47.68	\$47.68	\$47.69	1,464,000	1.42%
7/27/2012	\$49.12	\$49.09	\$49.10	1,793,400	2.98%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
7/30/2012	\$48.64	\$48.63	\$48.64	1,639,400	-0.98%
7/31/2012	\$47.56	\$47.55	\$47.56	1,678,500	-2.25%
8/1/2012	\$46.89	\$46.89	\$46.90	2,913,300	-1.42%
8/2/2012	\$46.93	\$46.88	\$46.89	3,015,700	0.09%
8/3/2012	\$47.93	\$47.92	\$47.93	1,721,100	2.11%
8/6/2012	\$48.11	\$48.13	\$48.14	1,003,100	0.37%
8/7/2012	\$49.58	\$49.59	\$49.61	5,141,600	3.01%
8/8/2012	\$50.36	\$50.38	\$50.39	1,639,400	1.56%
8/9/2012	\$49.96	\$49.96	\$49.97	1,089,400	-0.80%
8/10/2012	\$50.36	\$50.33	\$50.34	1,241,600	0.80%
8/13/2012	\$49.96	\$49.97	\$49.98	1,066,100	-0.80%
8/14/2012	\$50.76	\$50.76	\$50.77	1,750,000	1.59%
8/15/2012	\$51.27	\$51.26	\$51.27	1,941,100	1.00%
8/16/2012	\$50.61	\$50.61	\$50.62	1,406,500	-1.30%
8/17/2012	\$51.90	\$51.90	\$51.91	2,490,300	2.52%
8/20/2012	\$52.52	\$52.50	\$52.51	1,718,500	1.19%
8/21/2012	\$52.32	\$52.32	\$52.33	3,041,000	-0.38%
8/22/2012	\$52.07	\$52.05	\$52.06	1,043,700	-0.48%
8/23/2012	\$51.25	\$51.24	\$51.25	1,317,200	-1.59%
8/24/2012	\$52.10	\$52.08	\$52.09	1,178,800	1.64%
8/27/2012	\$51.71	\$51.71	\$51.72	1,485,000	-0.75%
8/28/2012	\$51.52	\$51.51	\$51.52	819,500	-0.37%
8/29/2012	\$51.75	\$51.74	\$51.75	549,700	0.45%
8/30/2012	\$51.19	\$51.16	\$51.18	552,000	-1.09%
8/31/2012	\$51.27	\$51.27	\$51.28	613,800	0.16%
9/4/2012	\$58.78	\$58.78	\$58.79	11,049,800	13.67%
9/5/2012	\$59.30	\$59.30	\$59.31	2,814,900	0.88%
9/6/2012	\$60.19	\$60.20	\$60.21	2,161,400	1.49%
9/7/2012	\$59.47	\$59.46	\$59.47	1,581,600	-1.20%
9/10/2012	\$59.15	\$59.13	\$59.14	1,006,100	-0.54%
9/11/2012	\$58.04	\$58.03	\$58.04	1,602,500	-1.89%
9/12/2012	\$58.40	\$58.38	\$58.39	1,035,200	0.62%
9/13/2012	\$58.64	\$58.63	\$58.64	1,321,300	0.41%
9/14/2012	\$56.37	\$56.32	\$56.34	4,103,800	-3.95%
9/17/2012	\$55.90	\$55.90	\$55.91	1,394,400	-0.84%
9/18/2012	\$55.54	\$55.52	\$55.53	1,516,800	-0.65%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
9/19/2012	\$55.69	\$55.68	\$55.69	871,600	0.27%
9/20/2012	\$55.69	\$55.69	\$55.70	1,090,000	0.00%
9/21/2012	\$55.11	\$55.12	\$55.13	1,967,900	-1.05%
9/24/2012	\$54.98	\$55.00	\$55.02	1,756,900	-0.24%
9/25/2012	\$55.48	\$55.49	\$55.50	1,845,400	0.91%
9/26/2012	\$55.27	\$55.34	\$55.35	954,600	-0.38%
9/27/2012	\$55.59	\$55.58	\$55.59	947,800	0.58%
9/28/2012	\$55.27	\$55.26	\$55.27	1,193,600	-0.58%
10/1/2012	\$56.16	\$56.16	\$56.17	1,653,700	1.60%
10/2/2012	\$55.87	\$55.85	\$55.86	783,300	-0.52%
10/3/2012	\$56.95	\$56.94	\$56.95	1,828,100	1.91%
10/4/2012	\$56.94	\$56.93	\$56.94	1,264,900	-0.02%
10/5/2012	\$56.70	\$56.69	\$56.70	485,400	-0.42%
10/8/2012	\$56.52	\$56.51	\$56.52	440,100	-0.32%
10/9/2012	\$55.89	\$55.84	\$55.85	572,800	-1.12%
10/10/2012	\$55.26	\$55.26	\$55.27	980,700	-1.13%
10/11/2012	\$56.04	\$56.05	\$56.06	520,400	1.40%
10/12/2012	\$55.74	\$55.73	\$55.74	481,400	-0.54%
10/15/2012	\$56.35	\$56.36	\$56.37	599,300	1.09%
10/16/2012	\$57.67	\$57.67	\$57.68	1,091,500	2.32%
10/17/2012	\$58.61	\$58.60	\$58.61	1,342,600	1.62%
10/18/2012	\$58.07	\$57.99	\$58.00	1,046,100	-0.93%
10/19/2012	\$56.44	\$56.44	\$56.45	1,658,300	-2.85%
10/22/2012	\$55.99	\$55.97	\$55.98	739,900	-0.80%
10/23/2012	\$54.62	\$54.62	\$54.63	792,900	-2.48%
10/24/2012	\$55.02	\$55.01	\$55.02	608,000	0.73%
10/25/2012	\$55.27	\$55.27	\$55.28	595,800	0.45%
10/26/2012	\$55.62	\$55.65	\$55.66	643,600	0.63%
10/31/2012	\$55.93	\$55.94	\$55.95	1,071,200	0.56%
11/1/2012	\$56.76	\$56.76	\$56.78	1,117,800	1.47%
11/2/2012	\$56.37	\$56.37	\$56.39	2,530,500	-0.69%
11/5/2012	\$55.29	\$55.28	\$55.29	1,116,500	-1.93%
11/6/2012	\$54.00	\$53.99	\$54.00	1,803,800	-2.36%
11/7/2012	\$53.33	\$53.32	\$53.33	1,725,400	-1.25%
11/8/2012	\$54.07	\$54.06	\$54.07	1,390,300	1.38%
11/9/2012	\$53.96	\$53.95	\$53.96	2,094,500	-0.20%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
11/12/2012	\$54.98	\$54.98	\$54.99	1,117,800	1.87%
11/13/2012	\$55.04	\$55.02	\$55.03	1,512,900	0.11%
11/14/2012	\$53.56	\$53.56	\$53.57	1,333,600	-2.73%
11/15/2012	\$53.32	\$53.32	\$53.33	1,283,800	-0.45%
11/16/2012	\$55.03	\$55.02	\$55.03	2,092,200	3.16%
11/19/2012	\$55.29	\$55.29	\$55.30	1,059,700	0.47%
11/20/2012	\$55.12	\$55.11	\$55.12	737,600	-0.31%
11/21/2012	\$55.02	\$55.00	\$55.02	657,100	-0.18%
11/23/2012	\$55.39	\$55.45	\$55.46	607,000	0.67%
11/26/2012	\$56.19	\$56.21	\$56.22	1,309,600	1.43%
11/27/2012	\$54.91	\$54.91	\$54.92	1,019,100	-2.30%
11/28/2012	\$55.05	\$55.04	\$55.05	1,712,100	0.25%
11/29/2012	\$55.40	\$55.38	\$55.39	2,007,300	0.63%
11/30/2012	\$55.28	\$55.28	\$55.29	3,198,800	-0.22%
12/3/2012	\$55.37	\$55.37	\$55.38	1,560,500	0.16%
12/4/2012	\$56.90	\$56.89	\$56.90	3,375,200	2.73%
12/5/2012	\$57.71	\$57.71	\$57.72	2,523,500	1.41%
12/6/2012	\$57.71	\$57.71	\$57.72	1,156,900	0.00%
12/7/2012	\$57.79	\$57.78	\$57.79	897,800	0.14%
12/10/2012	\$58.16	\$58.13	\$58.14	878,600	0.64%
12/11/2012	\$59.23	\$59.24	\$59.25	1,298,600	1.82%
12/12/2012	\$59.26	\$59.28	\$59.29	1,368,700	0.05%
12/13/2012	\$58.08	\$58.09	\$58.10	1,460,200	-2.01%
12/14/2012	\$59.03	\$59.01	\$59.02	1,496,600	1.62%
12/17/2012	\$59.46	\$59.47	\$59.48	1,677,400	0.73%
12/18/2012	\$59.91	\$59.88	\$59.90	1,728,100	0.75%
12/19/2012	\$59.75	\$59.76	\$59.78	1,710,300	-0.27%
12/20/2012	\$61.03	\$61.03	\$61.04	2,522,600	2.12%
12/21/2012	\$60.84	\$60.85	\$60.86	2,137,700	-0.31%
12/24/2012	\$60.39	\$60.41	\$60.42	652,500	-0.74%
12/26/2012	\$60.31	\$60.31	\$60.33	777,400	-0.13%
12/27/2012	\$59.68	\$59.67	\$59.68	2,041,300	-1.05%
12/28/2012	\$58.87	\$58.85	\$58.86	673,200	-1.37%
12/31/2012	\$59.77	\$59.77	\$59.78	1,944,300	1.52%
1/2/2013	\$60.75	\$60.74	\$60.75	2,440,500	1.63%
1/3/2013	\$61.07	\$61.06	\$61.07	2,613,500	0.53%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
1/4/2013	\$60.71	\$60.69	\$60.70	3,051,700	-0.59%
1/7/2013	\$61.31	\$61.31	\$61.32	1,213,000	0.98%
1/8/2013	\$62.29	\$62.29	\$62.30	1,616,300	1.59%
1/9/2013	\$63.82	\$63.82	\$63.83	1,605,200	2.43%
1/10/2013	\$63.91	\$63.91	\$63.92	1,279,200	0.14%
1/11/2013	\$63.63	\$63.61	\$63.62	1,074,200	-0.44%
1/14/2013	\$63.58	\$63.58	\$63.59	697,800	-0.08%
1/15/2013	\$63.70	\$63.72	\$63.74	1,396,700	0.19%
1/16/2013	\$63.52	\$63.52	\$63.53	1,232,900	-0.28%
1/17/2013	\$63.78	\$63.78	\$63.79	1,594,300	0.41%
1/18/2013	\$63.77	\$63.78	\$63.79	1,042,900	-0.02%
1/22/2013	\$64.20	\$64.20	\$64.21	1,370,000	0.67%
1/23/2013	\$63.84	\$63.84	\$63.85	1,074,300	-0.56%
1/24/2013	\$64.55	\$64.56	\$64.57	1,002,900	1.11%
1/25/2013	\$65.64	\$65.64	\$65.66	1,287,700	1.67%
1/28/2013	\$65.55	\$65.56	\$65.57	818,200	-0.14%
1/29/2013	\$65.85	\$65.86	\$65.87	1,604,900	0.46%
1/30/2013	\$66.17	\$66.18	\$66.19	2,315,800	0.48%
1/31/2013	\$66.32	\$66.33	\$66.35	1,276,500	0.23%
2/1/2013	\$67.25	\$67.23	\$67.24	1,215,300	1.39%
2/4/2013	\$66.41	\$66.41	\$66.42	1,606,100	-1.26%
2/5/2013	\$66.64	\$66.64	\$66.65	1,041,700	0.35%
2/6/2013	\$66.91	\$66.91	\$66.92	627,600	0.40%
2/7/2013	\$67.24	\$67.22	\$67.23	689,500	0.49%
2/8/2013	\$67.80	\$67.81	\$67.82	725,300	0.83%
2/11/2013	\$67.56	\$67.57	\$67.58	852,600	-0.35%
2/12/2013	\$67.43	\$67.44	\$67.45	842,700	-0.19%
2/13/2013	\$67.50	\$67.49	\$67.50	916,400	0.10%
2/14/2013	\$66.39	\$66.41	\$66.42	1,223,900	-1.66%
2/15/2013	\$66.53	\$66.54	\$66.55	1,040,300	0.21%
2/19/2013	\$67.02	\$67.00	\$67.01	691,300	0.73%
2/20/2013	\$66.24	\$66.24	\$66.25	1,087,100	-1.17%
2/21/2013	\$65.69	\$65.72	\$65.73	1,372,100	-0.83%
2/22/2013	\$65.74	\$65.75	\$65.76	862,000	0.08%
2/25/2013	\$65.46	\$65.47	\$65.48	1,047,800	-0.43%
2/26/2013	\$65.16	\$65.16	\$65.17	1,074,000	-0.46%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
2/27/2013	\$66.74	\$66.76	\$66.78	1,180,100	2.40%
2/28/2013	\$67.46	\$67.41	\$67.42	1,180,400	1.07%
3/1/2013	\$67.63	\$67.63	\$67.64	2,117,900	0.25%
3/4/2013	\$69.41	\$69.39	\$69.40	2,537,600	2.60%
3/5/2013	\$69.79	\$69.79	\$69.80	1,293,700	0.55%
3/6/2013	\$68.52	\$68.51	\$68.52	894,900	-1.84%
3/7/2013	\$69.84	\$69.81	\$69.83	1,152,000	1.91%
3/8/2013	\$70.78	\$70.78	\$70.79	1,186,200	1.34%
3/11/2013	\$70.53	\$70.53	\$70.55	901,800	-0.35%
3/12/2013	\$70.60	\$70.60	\$70.61	999,300	0.10%
3/13/2013	\$69.93	\$69.91	\$69.92	1,031,800	-0.95%
3/14/2013	\$70.07	\$70.04	\$70.05	1,251,500	0.20%
3/15/2013	\$69.86	\$69.85	\$69.86	1,708,700	-0.30%
3/18/2013	\$70.54	\$70.52	\$70.54	1,117,800	0.97%
3/19/2013	\$71.44	\$71.43	\$71.44	2,820,700	1.27%
3/20/2013	\$73.33	\$73.28	\$73.29	2,211,300	2.61%
3/21/2013	\$72.86	\$72.86	\$72.87	2,027,700	-0.64%
3/22/2013	\$73.97	\$73.97	\$73.98	1,376,700	1.51%
3/25/2013	\$73.95	\$73.96	\$73.97	1,264,100	-0.03%
3/26/2013	\$74.40	\$74.38	\$74.40	774,700	0.61%
3/27/2013	\$74.12	\$74.11	\$74.12	925,100	-0.38%
3/28/2013	\$75.02	\$75.01	\$75.02	845,900	1.21%
4/1/2013	\$76.05	\$76.05	\$76.07	1,298,200	1.36%
4/2/2013	\$75.37	\$75.34	\$75.37	1,958,700	-0.90%
4/3/2013	\$71.87	\$71.88	\$71.89	6,156,100	-4.76%
4/4/2013	\$72.61	\$72.61	\$72.62	4,019,300	1.02%
4/5/2013	\$71.79	\$71.79	\$71.80	1,120,600	-1.14%
4/8/2013	\$72.12	\$72.12	\$72.13	934,200	0.46%
4/9/2013	\$72.12	\$72.10	\$72.11	1,036,300	0.00%
4/10/2013	\$73.00	\$72.99	\$73.00	799,700	1.21%
4/11/2013	\$73.79	\$73.79	\$73.80	888,600	1.08%
4/12/2013	\$73.17	\$73.16	\$73.17	932,000	-0.84%
4/15/2013	\$72.12	\$72.12	\$72.13	1,130,400	-1.45%
4/16/2013	\$73.09	\$73.06	\$73.07	755,200	1.34%
4/17/2013	\$72.86	\$72.85	\$72.86	880,000	-0.32%
4/18/2013	\$72.81	\$72.81	\$72.83	814,100	-0.07%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
4/19/2013	\$75.52	\$75.50	\$75.52	1,188,200	3.65%
4/22/2013	\$74.20	\$74.18	\$74.19	1,056,800	-1.76%
4/23/2013	\$74.98	\$74.98	\$74.99	946,100	1.05%
4/24/2013	\$74.82	\$74.83	\$74.84	942,500	-0.21%
4/25/2013	\$73.59	\$73.59	\$73.60	1,545,300	-1.66%
4/26/2013	\$73.16	\$73.16	\$73.17	1,249,100	-0.59%
4/29/2013	\$75.94	\$75.92	\$75.94	3,607,400	3.73%
4/30/2013	\$76.08	\$76.07	\$76.08	1,427,600	0.18%
5/1/2013	\$73.69	\$73.68	\$73.69	1,638,800	-3.19%
5/2/2013	\$72.15	\$72.13	\$72.15	1,830,800	-2.11%
5/3/2013	\$73.68	\$73.65	\$73.66	1,228,600	2.10%
5/6/2013	\$73.42	\$73.43	\$73.44	835,900	-0.35%
5/7/2013	\$74.07	\$74.06	\$74.07	725,900	0.88%
5/8/2013	\$73.86	\$73.87	\$73.88	713,700	-0.28%
5/9/2013	\$72.74	\$72.74	\$72.75	1,267,000	-1.53%
5/10/2013	\$73.52	\$73.52	\$73.53	2,889,500	1.07%
5/13/2013	\$75.89	\$75.90	\$75.91	1,427,300	3.17%
5/14/2013	\$77.30	\$77.30	\$77.31	1,426,100	1.84%
5/15/2013	\$76.33	\$76.33	\$76.34	854,100	-1.26%
5/16/2013	\$75.75	\$75.75	\$75.76	724,400	-0.76%
5/17/2013	\$78.17	\$78.13	\$78.14	1,428,700	3.14%
5/20/2013	\$75.38	\$75.35	\$75.36	1,113,300	-3.63%
5/21/2013	\$75.53	\$75.55	\$75.56	1,035,700	0.20%
5/22/2013	\$74.82	\$74.85	\$74.86	871,900	-0.94%
5/23/2013	\$74.67	\$74.66	\$74.67	652,300	-0.20%
5/24/2013	\$84.47	\$84.45	\$84.46	10,383,600	12.33%
5/28/2013	\$91.80	\$91.80	\$91.81	11,535,900	8.32%
5/29/2013	\$90.81	\$90.75	\$90.77	3,686,100	-1.08%
5/30/2013	\$91.00	\$91.01	\$91.05	1,595,800	0.21%
5/31/2013	\$91.12	\$91.12	\$91.13	1,825,100	0.13%
6/3/2013	\$88.21	\$88.27	\$88.28	1,817,700	-3.25%
6/4/2013	\$85.18	\$85.18	\$85.19	1,919,500	-3.50%
6/5/2013	\$84.16	\$84.14	\$84.15	1,627,700	-1.20%
6/6/2013	\$84.87	\$84.89	\$84.90	1,100,400	0.84%
6/7/2013	\$85.59	\$85.56	\$85.58	1,284,500	0.84%
6/10/2013	\$85.11	\$85.13	\$85.14	1,019,900	-0.56%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
6/11/2013	\$83.77	\$83.77	\$83.78	1,141,100	-1.59%
6/12/2013	\$83.36	\$83.36	\$83.39	1,298,600	-0.49%
6/13/2013	\$85.81	\$85.81	\$85.82	1,131,400	2.90%
6/14/2013	\$84.20	\$84.23	\$84.24	1,129,900	-1.89%
6/17/2013	\$84.82	\$84.85	\$84.87	909,300	0.73%
6/18/2013	\$85.86	\$85.86	\$85.87	2,443,500	1.22%
6/19/2013	\$86.41	\$86.42	\$86.43	8,347,300	0.64%
6/20/2013	\$83.84	\$83.87	\$83.91	3,789,900	-3.02%
6/21/2013	\$84.42	\$84.34	\$84.36	2,611,400	0.69%
6/24/2013	\$84.00	\$83.95	\$83.98	1,860,500	-0.50%
6/25/2013	\$85.24	\$85.24	\$85.25	2,052,300	1.47%
6/26/2013	\$84.95	\$84.93	\$84.95	1,814,400	-0.34%
6/27/2013	\$86.15	\$86.14	\$86.15	2,505,700	1.40%
6/28/2013	\$86.08	\$86.06	\$86.07	1,555,100	-0.08%
7/1/2013	\$88.00	\$87.99	\$88.01	1,793,400	2.21%
7/2/2013	\$89.99	\$89.99	\$90.02	2,481,600	2.24%
7/3/2013	\$89.50	\$89.50	\$89.52	851,000	-0.55%
7/5/2013	\$88.77	\$88.74	\$88.75	798,300	-0.82%
7/8/2013	\$90.03	\$90.03	\$90.04	1,247,000	1.41%
7/9/2013	\$89.96	\$89.92	\$89.93	1,506,900	-0.08%
7/10/2013	\$90.20	\$90.17	\$90.18	974,900	0.27%
7/11/2013	\$92.47	\$92.47	\$92.48	1,730,200	2.49%
7/12/2013	\$92.90	\$92.90	\$92.91	1,346,500	0.46%
7/15/2013	\$93.80	\$93.80	\$93.81	1,569,100	0.96%
7/16/2013	\$91.53	\$91.51	\$91.52	1,547,900	-2.45%
7/17/2013	\$91.45	\$91.43	\$91.45	1,282,900	-0.09%
7/18/2013	\$91.39	\$91.39	\$91.41	925,000	-0.07%
7/19/2013	\$90.80	\$90.79	\$90.80	1,081,500	-0.65%
7/22/2013	\$90.81	\$90.79	\$90.80	1,219,000	0.01%
7/23/2013	\$90.49	\$90.44	\$90.45	1,047,800	-0.35%
7/24/2013	\$91.33	\$91.32	\$91.33	1,425,000	0.92%
7/25/2013	\$91.99	\$91.99	\$92.00	1,075,000	0.72%
7/26/2013	\$91.96	\$91.97	\$91.98	457,100	-0.03%
7/29/2013	\$91.70	\$91.63	\$91.64	666,400	-0.28%
7/30/2013	\$91.00	\$90.99	\$91.00	1,001,100	-0.77%
7/31/2013	\$93.60	\$93.59	\$93.60	1,375,600	2.82%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
8/1/2013	\$96.04	\$96.03	\$96.04	2,069,800	2.57%
8/2/2013	\$96.45	\$96.45	\$96.46	890,400	0.43%
8/5/2013	\$95.57	\$95.51	\$95.52	671,200	-0.92%
8/6/2013	\$95.72	\$95.72	\$95.77	1,203,900	0.16%
8/7/2013	\$97.59	\$97.60	\$97.63	2,003,300	1.93%
8/8/2013	\$101.68	\$101.68	\$101.69	2,147,100	4.11%
8/9/2013	\$101.87	\$101.88	\$101.93	1,450,700	0.19%
8/12/2013	\$101.95	\$101.93	\$101.95	1,437,800	0.08%
8/13/2013	\$103.98	\$103.99	\$104.00	1,649,900	1.97%
8/14/2013	\$103.90	\$103.87	\$103.89	1,502,500	-0.08%
8/15/2013	\$102.93	\$102.92	\$102.93	1,575,700	-0.94%
8/16/2013	\$103.00	\$103.01	\$103.04	1,045,700	0.07%
8/19/2013	\$101.06	\$101.02	\$101.03	1,552,700	-1.90%
8/20/2013	\$101.53	\$101.50	\$101.51	801,500	0.46%
8/21/2013	\$99.77	\$99.71	\$99.72	1,526,400	-1.75%
8/22/2013	\$99.30	\$99.27	\$99.28	1,098,600	-0.47%
8/23/2013	\$99.52	\$99.49	\$99.50	1,323,300	0.22%
8/26/2013	\$99.60	\$99.56	\$99.57	995,700	0.08%
8/27/2013	\$95.80	\$95.79	\$95.80	1,639,000	-3.89%
8/28/2013	\$97.85	\$97.83	\$97.84	798,800	2.12%
8/29/2013	\$98.95	\$98.96	\$98.97	830,600	1.12%
8/30/2013	\$98.34	\$98.35	\$98.36	1,030,700	-0.62%
9/3/2013	\$99.35	\$99.34	\$99.35	1,070,500	1.02%
9/4/2013	\$99.94	\$99.96	\$99.97	1,006,300	0.59%
9/5/2013	\$99.80	\$99.76	\$99.79	829,500	-0.14%
9/6/2013	\$100.24	\$100.18	\$100.19	740,400	0.44%
9/9/2013	\$101.33	\$101.33	\$101.34	716,300	1.08%
9/10/2013	\$100.20	\$100.19	\$100.20	958,900	-1.12%
9/11/2013	\$100.26	\$100.26	\$100.29	880,100	0.06%
9/12/2013	\$99.57	\$99.53	\$99.54	610,400	-0.69%
9/13/2013	\$99.20	\$99.20	\$99.22	832,500	-0.37%
9/16/2013	\$101.22	\$101.18	\$101.19	798,100	2.02%
9/17/2013	\$102.77	\$102.78	\$102.79	1,232,900	1.52%
9/18/2013	\$102.83	\$102.84	\$102.85	1,074,600	0.06%
9/19/2013	\$106.12	\$106.05	\$106.07	1,605,200	3.15%
9/20/2013	\$104.41	\$104.41	\$104.45	1,450,800	-1.62%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
9/23/2013	\$103.08	\$103.07	\$103.08	1,118,200	-1.28%
9/24/2013	\$103.73	\$103.71	\$103.72	1,965,700	0.63%
9/25/2013	\$102.34	\$102.34	\$102.35	852,300	-1.35%
9/26/2013	\$103.29	\$103.32	\$103.33	449,600	0.92%
9/27/2013	\$104.72	\$104.72	\$104.74	601,800	1.37%
9/30/2013	\$104.33	\$104.34	\$104.35	782,100	-0.37%
10/1/2013	\$108.16	\$108.13	\$108.15	1,171,500	3.61%
10/2/2013	\$109.80	\$109.80	\$109.82	1,529,600	1.50%
10/3/2013	\$111.40	\$111.40	\$111.41	2,856,000	1.45%
10/4/2013	\$111.01	\$111.00	\$111.01	1,743,100	-0.35%
10/7/2013	\$110.32	\$110.30	\$110.32	1,248,300	-0.62%
10/8/2013	\$105.92	\$105.88	\$105.89	1,727,800	-4.07%
10/9/2013	\$107.03	\$106.98	\$107.03	1,307,800	1.04%
10/10/2013	\$110.00	\$110.01	\$110.05	871,100	2.74%
10/11/2013	\$109.43	\$109.46	\$109.49	407,600	-0.52%
10/14/2013	\$109.78	\$109.74	\$109.75	587,100	0.32%
10/15/2013	\$109.73	\$109.67	\$109.69	622,600	-0.05%
10/16/2013	\$110.63	\$110.54	\$110.57	627,300	0.82%
10/17/2013	\$112.00	\$111.97	\$112.00	867,600	1.23%
10/18/2013	\$113.02	\$112.99	\$113.01	998,500	0.91%
10/21/2013	\$112.30	\$112.29	\$112.30	965,800	-0.64%
10/22/2013	\$112.53	\$112.44	\$112.45	992,500	0.20%
10/23/2013	\$114.37	\$114.35	\$114.37	1,162,400	1.62%
10/24/2013	\$114.29	\$114.29	\$114.30	1,281,500	-0.07%
10/25/2013	\$112.57	\$112.55	\$112.57	801,400	-1.52%
10/28/2013	\$110.42	\$110.42	\$110.45	1,085,400	-1.93%
10/29/2013	\$111.06	\$110.99	\$111.00	1,017,400	0.58%
10/30/2013	\$109.06	\$109.02	\$109.03	1,543,300	-1.82%
10/31/2013	\$105.72	\$105.72	\$105.77	5,138,900	-3.11%
11/1/2013	\$111.20	\$111.15	\$111.16	2,535,000	5.05%
11/4/2013	\$110.33	\$110.30	\$110.31	1,148,400	-0.79%
11/5/2013	\$109.45	\$109.50	\$109.51	729,800	-0.80%
11/6/2013	\$106.45	\$106.43	\$106.44	1,517,700	-2.78%
11/7/2013	\$103.04	\$103.09	\$103.12	1,399,400	-3.26%
11/8/2013	\$105.44	\$105.42	\$105.44	858,700	2.30%
11/11/2013	\$105.16	\$105.17	\$105.19	594,000	-0.27%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
11/12/2013	\$105.74	\$105.74	\$105.75	648,800	0.55%
11/13/2013	\$107.15	\$107.15	\$107.16	1,038,100	1.32%
11/14/2013	\$105.86	\$105.91	\$105.92	915,000	-1.21%
11/15/2013	\$107.12	\$107.09	\$107.11	1,118,700	1.18%
11/18/2013	\$106.74	\$106.79	\$106.81	897,700	-0.36%
11/19/2013	\$105.92	\$105.92	\$105.93	620,200	-0.77%
11/20/2013	\$106.56	\$106.56	\$106.58	769,900	0.60%
11/21/2013	\$108.68	\$108.64	\$108.66	947,400	1.97%
11/22/2013	\$109.55	\$109.55	\$109.57	1,265,800	0.80%
11/25/2013	\$108.99	\$108.99	\$109.00	783,200	-0.51%
11/26/2013	\$109.22	\$109.22	\$109.26	758,600	0.21%
11/27/2013	\$108.35	\$108.36	\$108.37	469,000	-0.80%
11/29/2013	\$109.63	\$109.61	\$109.62	398,900	1.17%
12/2/2013	\$109.78	\$109.79	\$109.80	836,300	0.14%
12/3/2013	\$109.19	\$109.20	\$109.21	874,700	-0.54%
12/4/2013	\$107.90	\$107.91	\$107.92	1,096,900	-1.19%
12/5/2013	\$106.40	\$106.41	\$106.43	1,196,300	-1.40%
12/6/2013	\$107.67	\$107.68	\$107.71	946,800	1.19%
12/9/2013	\$107.97	\$107.99	\$108.00	1,026,900	0.28%
12/10/2013	\$108.62	\$108.63	\$108.65	1,022,800	0.60%
12/11/2013	\$106.49	\$106.50	\$106.51	1,228,900	-1.98%
12/12/2013	\$106.24	\$106.25	\$106.26	1,008,800	-0.24%
12/13/2013	\$106.83	\$106.86	\$106.87	798,100	0.55%
12/16/2013	\$110.92	\$110.91	\$110.92	2,012,600	3.76%
12/17/2013	\$109.32	\$109.33	\$109.34	938,000	-1.45%
12/18/2013	\$112.41	\$112.40	\$112.41	1,295,600	2.79%
12/19/2013	\$111.90	\$111.90	\$111.91	726,900	-0.45%
12/20/2013	\$112.00	\$112.00	\$112.01	1,051,400	0.09%
12/23/2013	\$112.62	\$112.60	\$112.61	634,600	0.55%
12/24/2013	\$113.02	\$113.11	\$113.12	380,300	0.35%
12/26/2013	\$113.56	\$113.44	\$113.45	415,900	0.48%
12/27/2013	\$113.60	\$113.57	\$113.60	543,600	0.04%
12/30/2013	\$117.42	\$117.43	\$117.45	1,259,600	3.31%
12/31/2013	\$117.40	\$117.43	\$117.44	1,062,700	-0.02%
1/2/2014	\$116.98	\$116.99	\$117.00	1,937,000	-0.36%
1/3/2014	\$117.16	\$117.16	\$117.18	787,400	0.15%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
1/6/2014	\$112.62	\$112.61	\$112.62	2,402,900	-3.95%
1/7/2014	\$125.35	\$125.32	\$125.34	3,319,500	10.71%
1/8/2014	\$128.30	\$128.25	\$128.26	3,026,000	2.33%
1/9/2014	\$132.17	\$132.12	\$132.17	1,383,400	2.97%
1/10/2014	\$133.50	\$133.48	\$133.49	1,658,000	1.00%
1/13/2014	\$130.62	\$130.54	\$130.57	1,560,900	-2.18%
1/14/2014	\$135.01	\$134.90	\$134.92	1,756,200	3.31%
1/15/2014	\$133.50	\$133.48	\$133.49	1,188,700	-1.12%
1/16/2014	\$137.34	\$137.25	\$137.28	1,538,700	2.84%
1/17/2014	\$137.93	\$137.91	\$137.92	2,320,700	0.43%
1/21/2014	\$136.88	\$136.87	\$136.88	1,537,500	-0.76%
1/22/2014	\$137.82	\$137.72	\$137.76	897,900	0.68%
1/23/2014	\$135.02	\$134.98	\$135.00	1,167,300	-2.05%
1/24/2014	\$132.12	\$132.19	\$132.20	1,712,300	-2.17%
1/27/2014	\$131.00	\$131.00	\$131.01	1,638,400	-0.85%
1/28/2014	\$132.80	\$132.72	\$132.76	1,000,300	1.36%
1/29/2014	\$132.80	\$132.79	\$132.80	920,900	0.00%
1/30/2014	\$136.60	\$136.51	\$136.54	1,166,000	2.82%
1/31/2014	\$135.64	\$135.62	\$135.63	1,187,700	-0.71%
2/3/2014	\$133.36	\$133.36	\$133.44	1,531,200	-1.70%
2/4/2014	\$135.56	\$135.56	\$135.57	1,160,200	1.64%
2/5/2014	\$134.61	\$134.60	\$134.61	1,432,400	-0.70%
2/6/2014	\$134.43	\$134.35	\$134.36	999,800	-0.13%
2/7/2014	\$137.93	\$137.93	\$137.96	1,550,800	2.57%
2/10/2014	\$138.13	\$138.07	\$138.13	1,122,400	0.14%
2/11/2014	\$141.31	\$141.35	\$141.37	1,915,300	2.28%
2/12/2014	\$140.77	\$140.82	\$140.85	1,310,200	-0.38%
2/13/2014	\$141.79	\$141.73	\$141.74	1,281,300	0.72%
2/14/2014	\$139.57	\$139.54	\$139.55	1,231,200	-1.58%
2/18/2014	\$146.47	\$146.41	\$146.43	2,208,700	4.83%
2/19/2014	\$145.02	\$145.02	\$145.03	1,788,700	-0.99%
2/20/2014	\$148.00	\$148.00	\$148.01	2,110,300	2.03%
2/21/2014	\$146.26	\$146.28	\$146.30	1,569,000	-1.18%
2/24/2014	\$145.73	\$145.71	\$145.72	1,544,200	-0.36%
2/25/2014	\$145.06	\$145.03	\$145.05	1,570,400	-0.46%
2/26/2014	\$146.34	\$146.26	\$146.30	2,905,300	0.88%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
2/27/2014	\$148.00	\$147.99	\$148.00	2,122,300	1.13%
2/28/2014	\$144.86	\$144.79	\$144.80	2,276,700	-2.14%
3/3/2014	\$143.38	\$143.33	\$143.34	2,072,084	-1.03%
3/4/2014	\$146.23	\$146.24	\$146.28	1,499,853	1.97%
3/5/2014	\$145.13	\$145.15	\$145.16	1,241,591	-0.76%
3/6/2014	\$138.55	\$138.55	\$138.58	4,773,397	-4.64%
3/7/2014	\$141.37	\$141.37	\$141.41	3,641,662	2.01%
3/10/2014	\$140.74	\$140.70	\$140.71	1,923,329	-0.45%
3/11/2014	\$139.96	\$139.99	\$140.00	1,297,900	-0.56%
3/12/2014	\$141.00	\$141.04	\$141.05	1,768,491	0.74%
3/13/2014	\$139.33	\$139.34	\$139.35	2,269,580	-1.19%
3/14/2014	\$140.01	\$139.98	\$139.99	1,255,793	0.49%
3/17/2014	\$140.90	\$140.95	\$140.97	1,251,451	0.63%
3/18/2014	\$144.18	\$144.16	\$144.18	1,321,478	2.30%
3/19/2014	\$140.79	\$140.76	\$140.78	1,605,926	-2.38%
3/20/2014	\$140.40	\$140.34	\$140.35	991,331	-0.28%
3/21/2014	\$135.55	\$135.55	\$135.56	2,002,599	-3.52%
3/24/2014	\$131.47	\$131.40	\$131.45	3,474,965	-3.06%
3/25/2014	\$131.53	\$131.54	\$131.56	1,417,466	0.05%
3/26/2014	\$129.07	\$129.07	\$129.09	2,483,092	-1.89%
3/27/2014	\$127.19	\$127.19	\$127.24	2,705,088	-1.47%
3/28/2014	\$127.68	\$127.65	\$127.66	2,178,878	0.38%
3/31/2014	\$131.83	\$131.92	\$131.95	2,177,454	3.20%
4/1/2014	\$133.25	\$133.25	\$133.26	2,060,264	1.07%
4/2/2014	\$133.69	\$133.69	\$133.70	1,796,094	0.33%
4/3/2014	\$129.10	\$129.07	\$129.08	1,948,793	-3.49%
4/4/2014	\$124.69	\$124.76	\$124.79	3,311,776	-3.48%
4/7/2014	\$119.23	\$119.19	\$119.20	4,164,465	-4.48%
4/8/2014	\$122.03	\$122.05	\$122.09	5,178,060	2.32%
4/9/2014	\$129.34	\$129.34	\$129.35	3,226,627	5.82%
4/10/2014	\$123.33	\$123.52	\$123.53	3,599,136	-4.76%
4/11/2014	\$118.79	\$118.79	\$118.80	2,061,729	-3.75%
4/14/2014	\$116.99	\$116.98	\$116.99	2,640,868	-1.53%
4/15/2014	\$120.12	\$120.08	\$120.12	2,877,066	2.64%
4/16/2014	\$121.45	\$121.42	\$121.45	1,885,722	1.10%
4/17/2014	\$122.05	\$122.02	\$122.04	1,358,672	0.49%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
4/21/2014	\$126.01	\$126.02	\$126.03	2,789,973	3.19%
4/22/2014	\$135.41	\$135.27	\$135.29	17,982,948	7.19%
4/23/2014	\$133.23	\$133.27	\$133.28	5,003,009	-1.62%
4/24/2014	\$134.42	\$134.56	\$134.57	3,109,829	0.89%
4/25/2014	\$133.73	\$133.78	\$133.79	3,838,058	-0.51%
4/28/2014	\$133.51	\$133.51	\$133.56	5,589,725	-0.16%
4/29/2014	\$133.63	\$133.62	\$133.63	2,882,115	0.09%
4/30/2014	\$133.71	\$133.68	\$133.69	2,306,175	0.06%
5/1/2014	\$138.13	\$138.13	\$138.14	3,616,291	3.25%
5/2/2014	\$136.35	\$136.33	\$136.35	2,561,880	-1.30%
5/5/2014	\$136.19	\$136.16	\$136.19	2,635,124	-0.12%
5/6/2014	\$133.35	\$133.32	\$133.35	2,243,730	-2.11%
5/7/2014	\$133.35	\$133.26	\$133.32	3,121,860	0.00%
5/8/2014	\$131.17	\$131.22	\$131.25	2,649,712	-1.65%
5/9/2014	\$131.17	\$131.15	\$131.16	3,023,480	0.00%
5/12/2014	\$130.16	\$130.20	\$130.29	3,864,072	-0.77%
5/13/2014	\$129.64	\$129.63	\$129.64	2,304,280	-0.40%
5/14/2014	\$126.97	\$126.97	\$126.99	2,966,968	-2.08%
5/15/2014	\$124.04	\$124.04	\$124.05	4,465,522	-2.33%
5/16/2014	\$126.76	\$126.76	\$126.78	3,373,114	2.17%
5/19/2014	\$127.21	\$127.26	\$127.27	2,177,931	0.35%
5/20/2014	\$130.97	\$130.98	\$131.00	4,848,673	2.91%
5/21/2014	\$129.90	\$129.93	\$129.95	1,828,663	-0.82%
5/22/2014	\$130.83	\$130.85	\$130.86	1,900,913	0.71%
5/23/2014	\$133.46	\$133.36	\$133.37	2,050,822	1.99%
5/27/2014	\$129.95	\$129.95	\$130.00	4,363,751	-2.67%
5/28/2014	\$126.95	\$127.02	\$127.04	8,032,690	-2.34%
5/29/2014	\$129.22	\$129.21	\$129.22	3,480,497	1.77%
5/30/2014	\$131.21	\$131.23	\$131.24	11,609,314	1.53%
6/2/2014	\$134.17	\$134.17	\$134.18	6,252,306	2.23%
6/3/2014	\$132.26	\$132.26	\$132.27	3,757,663	-1.43%
6/4/2014	\$128.82	\$128.80	\$128.82	4,965,026	-2.64%
6/5/2014	\$128.34	\$128.31	\$128.32	3,782,435	-0.37%
6/6/2014	\$127.46	\$127.44	\$127.46	1,979,523	-0.69%
6/9/2014	\$126.63	\$126.60	\$126.63	1,826,374	-0.65%
6/10/2014	\$125.55	\$125.55	\$125.56	2,497,256	-0.86%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
6/11/2014	\$125.18	\$125.15	\$125.16	3,076,870	-0.30%
6/12/2014	\$120.75	\$120.73	\$120.76	6,213,629	-3.60%
6/13/2014	\$119.60	\$119.57	\$119.59	4,139,018	-0.96%
6/16/2014	\$117.75	\$117.73	\$117.74	4,226,568	-1.56%
6/17/2014	\$118.87	\$118.82	\$118.84	5,473,959	0.95%
6/18/2014	\$118.43	\$118.39	\$118.42	3,683,456	-0.37%
6/19/2014	\$117.55	\$117.61	\$117.62	3,887,140	-0.75%
6/20/2014	\$121.93	\$121.86	\$121.87	4,799,731	3.66%
6/23/2014	\$121.21	\$121.30	\$121.31	2,369,801	-0.59%
6/24/2014	\$120.52	\$120.52	\$120.54	2,201,761	-0.57%
6/25/2014	\$125.94	\$125.93	\$125.94	4,677,100	4.40%
6/26/2014	\$126.50	\$126.54	\$126.55	2,757,852	0.44%
6/27/2014	\$128.85	\$128.86	\$128.88	2,990,900	1.84%
6/30/2014	\$126.12	\$126.13	\$126.14	2,314,502	-2.14%
7/1/2014	\$125.58	\$125.61	\$125.62	1,582,704	-0.43%
7/2/2014	\$126.00	\$125.99	\$126.00	1,380,760	0.33%
7/3/2014	\$126.00	\$125.95	\$126.00	748,692	0.00%
7/7/2014	\$123.29	\$123.25	\$123.29	1,679,756	-2.17%
7/8/2014	\$122.17	\$122.15	\$122.16	1,918,289	-0.91%
7/9/2014	\$120.94	\$120.93	\$120.94	1,186,918	-1.01%
7/10/2014	\$120.68	\$120.58	\$120.59	2,003,292	-0.22%
7/11/2014	\$120.47	\$120.44	\$120.47	1,116,839	-0.17%
7/14/2014	\$121.08	\$121.04	\$121.05	1,006,950	0.51%
7/15/2014	\$119.45	\$119.34	\$119.35	1,957,091	-1.36%
7/16/2014	\$121.71	\$121.71	\$121.72	2,970,417	1.87%
7/17/2014	\$121.52	\$121.50	\$121.52	2,543,436	-0.16%
7/18/2014	\$121.97	\$121.98	\$121.99	1,958,699	0.37%
7/21/2014	\$125.54	\$125.53	\$125.54	3,235,480	2.88%
7/22/2014	\$122.54	\$122.54	\$122.55	2,999,409	-2.42%
7/23/2014	\$124.62	\$124.58	\$124.60	2,031,367	1.68%
7/24/2014	\$124.36	\$124.29	\$124.31	1,482,377	-0.21%
7/25/2014	\$123.52	\$123.48	\$123.51	1,014,642	-0.68%
7/28/2014	\$123.53	\$123.50	\$123.51	1,442,876	0.01%
7/29/2014	\$123.70	\$123.62	\$123.65	1,250,324	0.14%
7/30/2014	\$125.83	\$125.79	\$125.83	2,579,257	1.71%
7/31/2014	\$117.39	\$117.26	\$117.34	11,037,063	-6.94%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
8/1/2014	\$118.21	\$118.26	\$118.27	4,986,090	0.70%
8/4/2014	\$116.79	\$116.79	\$116.80	1,913,688	-1.21%
8/5/2014	\$110.66	\$110.69	\$110.71	8,471,651	-5.39%
8/6/2014	\$110.02	\$110.04	\$110.05	3,925,751	-0.58%
8/7/2014	\$106.73	\$106.70	\$106.71	3,362,916	-3.04%
8/8/2014	\$109.17	\$109.20	\$109.21	2,691,632	2.26%
8/11/2014	\$107.25	\$107.25	\$107.26	3,356,224	-1.77%
8/12/2014	\$108.07	\$108.09	\$108.11	2,076,489	0.76%
8/13/2014	\$109.17	\$109.17	\$109.20	2,445,201	1.01%
8/14/2014	\$111.04	\$110.94	\$111.02	4,394,741	1.70%
8/15/2014	\$112.26	\$112.26	\$112.27	2,921,577	1.09%
8/18/2014	\$109.78	\$109.79	\$109.81	2,657,609	-2.23%
8/19/2014	\$113.72	\$113.80	\$113.82	3,684,058	3.53%
8/20/2014	\$113.10	\$113.11	\$113.14	1,784,311	-0.55%
8/21/2014	\$113.81	\$113.78	\$113.79	1,356,281	0.63%
8/22/2014	\$117.26	\$117.18	\$117.21	3,026,793	2.99%
8/25/2014	\$115.48	\$115.49	\$115.52	1,716,797	-1.53%
8/26/2014	\$117.10	\$117.09	\$117.10	1,593,183	1.39%
8/27/2014	\$116.71	\$116.66	\$116.67	1,350,617	-0.33%
8/28/2014	\$116.86	\$116.81	\$116.82	1,104,945	0.13%
8/29/2014	\$117.30	\$117.25	\$117.26	1,028,401	0.38%
9/2/2014	\$120.10	\$120.13	\$120.15	1,916,662	2.36%
9/3/2014	\$119.03	\$118.96	\$118.97	1,498,105	-0.89%
9/4/2014	\$117.32	\$117.29	\$117.30	1,508,458	-1.45%
9/5/2014	\$119.68	\$119.63	\$119.64	1,842,210	1.99%
9/8/2014	\$120.05	\$120.06	\$120.07	1,355,904	0.31%
9/9/2014	\$120.03	\$120.02	\$120.03	2,059,729	-0.02%
9/10/2014	\$119.88	\$119.87	\$119.88	1,805,731	-0.13%
9/11/2014	\$120.41	\$120.38	\$120.39	2,088,929	0.44%
9/12/2014	\$122.05	\$122.00	\$122.04	2,500,847	1.35%
9/15/2014	\$121.43	\$121.41	\$121.43	2,093,361	-0.51%
9/16/2014	\$122.15	\$122.18	\$122.19	1,491,611	0.59%
9/17/2014	\$121.85	\$121.84	\$121.85	1,628,560	-0.25%
9/18/2014	\$120.52	\$120.54	\$120.56	1,620,882	-1.10%
9/19/2014	\$117.43	\$117.47	\$117.48	3,333,795	-2.60%
9/22/2014	\$116.28	\$116.34	\$116.36	2,054,508	-0.98%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
9/23/2014	\$115.95	\$115.95	\$115.96	3,652,251	-0.28%
9/24/2014	\$124.00	\$123.99	\$124.00	6,956,796	6.71%
9/25/2014	\$127.80	\$127.75	\$127.78	5,609,219	3.02%
9/26/2014	\$128.99	\$128.99	\$129.00	2,910,623	0.93%
9/29/2014	\$130.26	\$130.26	\$130.30	2,663,223	0.98%
9/30/2014	\$131.20	\$131.01	\$131.06	2,320,935	0.72%
10/1/2014	\$131.67	\$131.67	\$131.69	3,723,608	0.36%
10/2/2014	\$126.99	\$126.83	\$126.87	3,947,292	-3.62%
10/3/2014	\$129.62	\$129.62	\$129.64	3,851,337	2.05%
10/6/2014	\$128.41	\$128.45	\$128.46	1,675,803	-0.94%
10/7/2014	\$125.23	\$125.18	\$125.20	4,235,317	-2.51%
10/8/2014	\$125.90	\$125.95	\$125.96	2,382,843	0.53%
10/9/2014	\$122.35	\$122.34	\$122.35	2,990,645	-2.86%
10/10/2014	\$118.29	\$118.29	\$118.30	3,191,133	-3.37%
10/13/2014	\$113.56	\$113.53	\$113.54	2,807,442	-4.08%
10/14/2014	\$114.94	\$114.94	\$114.96	2,761,865	1.21%
10/15/2014	\$114.34	\$114.40	\$114.42	4,135,772	-0.52%
10/16/2014	\$118.54	\$118.55	\$118.57	3,188,192	3.61%
10/17/2014	\$120.21	\$120.19	\$120.21	3,565,756	1.40%
10/20/2014	\$124.78	\$124.77	\$124.78	3,400,991	3.73%
10/21/2014	\$130.38	\$130.38	\$130.42	3,944,008	4.39%
10/22/2014	\$128.77	\$128.83	\$128.84	1,928,610	-1.24%
10/23/2014	\$128.02	\$128.04	\$128.07	2,088,599	-0.58%
10/24/2014	\$129.13	\$129.15	\$129.18	1,831,757	0.86%
10/27/2014	\$130.56	\$130.52	\$130.55	2,825,550	1.10%
10/28/2014	\$131.07	\$131.04	\$131.05	2,741,232	0.39%
10/29/2014	\$129.76	\$129.73	\$129.74	2,417,161	-1.00%
10/30/2014	\$131.51	\$131.51	\$131.54	1,507,549	1.34%
10/31/2014	\$133.04	\$133.04	\$133.05	1,225,944	1.16%
11/3/2014	\$132.85	\$132.86	\$132.88	2,174,644	-0.14%
11/4/2014	\$133.61	\$133.62	\$133.63	2,968,496	0.57%
11/5/2014	\$131.91	\$131.91	\$131.92	2,314,442	-1.28%
11/6/2014	\$128.77	\$128.72	\$128.77	2,523,632	-2.41%
11/7/2014	\$126.11	\$126.06	\$126.08	2,713,765	-2.09%
11/10/2014	\$127.99	\$127.99	\$128.00	1,850,022	1.48%
11/11/2014	\$130.03	\$130.02	\$130.03	2,360,916	1.58%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
11/12/2014	\$131.09	\$131.09	\$131.12	2,187,314	0.81%
11/13/2014	\$131.90	\$131.95	\$131.97	1,482,145	0.62%
11/14/2014	\$134.21	\$134.24	\$134.26	2,117,625	1.74%
11/17/2014	\$136.73	\$136.70	\$136.73	8,868,287	1.86%
11/18/2014	\$141.94	\$141.95	\$141.96	5,743,382	3.74%
11/19/2014	\$142.47	\$142.43	\$142.45	2,277,791	0.37%
11/20/2014	\$142.68	\$142.68	\$142.70	2,184,004	0.15%
11/21/2014	\$145.37	\$145.37	\$145.38	2,258,349	1.87%
11/24/2014	\$142.56	\$142.61	\$142.66	2,950,847	-1.95%
11/25/2014	\$144.76	\$144.76	\$144.78	1,440,591	1.53%
11/26/2014	\$144.73	\$144.78	\$144.79	1,142,971	-0.02%
11/28/2014	\$145.45	\$145.44	\$145.50	978,673	0.50%
12/1/2014	\$145.81	\$145.82	\$145.84	1,526,118	0.25%
12/2/2014	\$146.39	\$146.36	\$146.37	1,237,274	0.40%
12/3/2014	\$145.27	\$145.27	\$145.30	1,253,164	-0.77%
12/4/2014	\$144.33	\$144.33	\$144.36	1,254,666	-0.65%
12/5/2014	\$144.89	\$144.89	\$144.90	1,833,793	0.39%
12/8/2014	\$143.94	\$143.90	\$143.91	1,238,737	-0.66%
12/9/2014	\$141.00	\$141.00	\$141.01	3,028,963	-2.06%
12/10/2014	\$137.96	\$138.03	\$138.04	1,812,813	-2.18%
12/11/2014	\$138.89	\$138.89	\$138.90	1,335,200	0.67%
12/12/2014	\$138.71	\$138.66	\$138.71	1,062,695	-0.13%
12/15/2014	\$138.16	\$138.12	\$138.13	1,788,110	-0.40%
12/16/2014	\$136.92	\$136.96	\$136.98	1,570,558	-0.90%
12/17/2014	\$140.00	\$140.06	\$140.07	1,367,324	2.22%
12/18/2014	\$143.00	\$143.05	\$143.08	2,207,293	2.12%
12/19/2014	\$146.06	\$146.01	\$146.06	2,044,308	2.12%
12/22/2014	\$144.16	\$144.13	\$144.15	2,214,878	-1.31%
12/23/2014	\$140.55	\$140.62	\$140.65	2,482,161	-2.54%
12/24/2014	\$140.33	\$140.33	\$140.38	593,594	-0.16%
12/26/2014	\$141.46	\$141.47	\$141.55	617,160	0.80%
12/29/2014	\$141.87	\$141.90	\$141.92	577,641	0.29%
12/30/2014	\$143.02	\$143.04	\$143.05	1,119,654	0.81%
12/31/2014	\$143.11	\$143.09	\$143.11	1,188,218	0.06%
1/2/2015	\$144.45	\$144.45	\$144.48	2,182,337	0.93%
1/5/2015	\$144.29	\$144.18	\$144.24	2,674,901	-0.11%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
1/6/2015	\$142.83	\$142.78	\$142.80	2,641,377	-1.02%
1/7/2015	\$145.12	\$145.07	\$145.09	2,214,315	1.59%
1/8/2015	\$154.10	\$153.99	\$154.02	5,817,995	6.00%
1/9/2015	\$153.58	\$153.60	\$153.61	2,039,747	-0.34%
1/12/2015	\$155.50	\$155.50	\$155.51	2,530,041	1.24%
1/13/2015	\$158.04	\$158.04	\$158.06	3,583,114	1.62%
1/14/2015	\$156.80	\$156.81	\$156.82	3,143,466	-0.79%
1/15/2015	\$154.29	\$154.23	\$154.26	2,444,900	-1.61%
1/16/2015	\$156.93	\$156.92	\$156.93	1,872,412	1.70%
1/20/2015	\$156.05	\$156.00	\$156.02	1,959,591	-0.56%
1/21/2015	\$157.02	\$157.00	\$157.01	2,005,810	0.62%
1/22/2015	\$159.19	\$159.13	\$159.15	2,034,009	1.37%
1/23/2015	\$159.66	\$159.62	\$159.66	1,908,808	0.29%
1/26/2015	\$159.86	\$159.79	\$159.80	1,652,760	0.13%
1/27/2015	\$160.80	\$160.77	\$160.80	1,336,529	0.59%
1/28/2015	\$160.59	\$160.51	\$160.54	2,141,402	-0.13%
1/29/2015	\$161.51	\$161.42	\$161.47	1,383,591	0.57%
1/30/2015	\$159.97	\$159.91	\$159.94	1,409,813	-0.96%
2/2/2015	\$161.98	\$161.92	\$161.93	1,625,777	1.25%
2/3/2015	\$159.71	\$159.66	\$159.69	3,684,925	-1.41%
2/4/2015	\$160.87	\$160.80	\$160.83	1,616,396	0.72%
2/5/2015	\$161.45	\$161.42	\$161.43	2,237,119	0.36%
2/6/2015	\$161.99	\$161.92	\$161.96	1,243,517	0.33%
2/9/2015	\$160.10	\$160.10	\$160.11	2,506,030	-1.17%
2/10/2015	\$164.13	\$164.07	\$164.10	1,712,820	2.49%
2/11/2015	\$164.34	\$164.29	\$164.31	2,207,722	0.13%
2/12/2015	\$167.50	\$167.49	\$167.50	2,907,282	1.90%
2/13/2015	\$167.00	\$166.98	\$166.99	1,206,057	-0.30%
2/17/2015	\$168.63	\$168.64	\$168.65	1,169,445	0.97%
2/18/2015	\$168.42	\$168.37	\$168.38	974,180	-0.12%
2/19/2015	\$169.13	\$169.12	\$169.13	1,090,897	0.42%
2/20/2015	\$173.26	\$173.18	\$173.19	3,499,487	2.41%
2/23/2015	\$198.75	\$198.88	\$198.92	19,636,609	13.73%
2/24/2015	\$202.00	\$201.40	\$201.52	12,810,324	1.62%
2/25/2015	\$198.00	\$197.84	\$197.87	6,079,115	-2.00%
2/26/2015	\$201.25	\$201.26	\$201.31	5,874,674	1.63%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
2/27/2015	\$197.48	\$197.40	\$197.48	6,588,161	-1.89%
3/2/2015	\$203.35	\$203.40	\$203.42	6,050,766	2.93%
3/3/2015	\$202.61	\$202.72	\$202.75	3,441,033	-0.36%
3/4/2015	\$203.15	\$203.14	\$203.17	3,207,068	0.27%
3/5/2015	\$203.95	\$203.91	\$203.94	2,152,878	0.39%
3/6/2015	\$198.71	\$198.63	\$198.64	3,756,156	-2.60%
3/9/2015	\$204.69	\$204.62	\$204.66	4,328,437	2.97%
3/10/2015	\$201.48	\$201.38	\$201.44	2,665,476	-1.58%
3/11/2015	\$193.71	\$193.82	\$193.83	12,144,647	-3.93%
3/12/2015	\$192.62	\$192.58	\$192.59	3,872,461	-0.56%
3/13/2015	\$197.43	\$197.44	\$197.50	4,785,183	2.47%
3/16/2015	\$202.34	\$202.38	\$202.42	3,917,437	2.46%
3/17/2015	\$200.73	\$200.67	\$200.69	3,342,493	-0.80%
3/18/2015	\$203.41	\$203.45	\$203.47	1,528,791	1.33%
3/19/2015	\$202.09	\$202.04	\$202.09	1,520,886	-0.65%
3/20/2015	\$204.26	\$204.16	\$204.23	1,165,763	1.07%
3/23/2015	\$203.67	\$203.60	\$203.61	1,426,619	-0.29%
3/24/2015	\$203.11	\$203.06	\$203.07	1,274,410	-0.28%
3/25/2015	\$197.01	\$196.93	\$196.97	2,277,057	-3.05%
3/26/2015	\$198.46	\$198.40	\$198.44	1,980,496	0.73%
3/27/2015	\$197.84	\$197.76	\$197.79	1,016,932	-0.31%
3/30/2015	\$201.38	\$201.27	\$201.36	1,310,585	1.77%
3/31/2015	\$198.62	\$198.80	\$198.90	1,542,068	-1.38%
4/1/2015	\$197.39	\$197.46	\$197.51	1,876,148	-0.62%
4/2/2015	\$198.45	\$198.32	\$198.38	1,138,503	0.54%
4/6/2015	\$197.84	\$197.77	\$197.79	1,077,249	-0.31%
4/7/2015	\$198.94	\$198.94	\$198.95	1,109,028	0.55%
4/8/2015	\$205.96	\$206.00	\$206.04	1,990,232	3.47%
4/9/2015	\$205.72	\$205.67	\$205.68	1,594,998	-0.12%
4/10/2015	\$207.50	\$207.50	\$207.54	1,162,145	0.86%
4/13/2015	\$209.46	\$209.60	\$209.66	1,516,985	0.94%
4/14/2015	\$208.94	\$209.02	\$209.07	1,538,181	-0.25%
4/15/2015	\$206.16	\$206.08	\$206.15	1,539,942	-1.34%
4/16/2015	\$207.36	\$207.21	\$207.29	972,141	0.58%
4/17/2015	\$205.32	\$205.28	\$205.32	1,485,122	-0.99%
4/20/2015	\$205.21	\$205.12	\$205.16	976,561	-0.05%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
4/21/2015	\$210.85	\$210.96	\$211.01	1,506,756	2.71%
4/22/2015	\$206.93	\$206.96	\$207.00	1,997,812	-1.88%
4/23/2015	\$209.39	\$209.26	\$209.27	1,672,676	1.18%
4/24/2015	\$210.42	\$210.33	\$210.38	1,515,541	0.49%
4/27/2015	\$202.02	\$202.06	\$202.09	3,080,051	-4.07%
4/28/2015	\$205.46	\$205.34	\$205.43	3,268,444	1.69%
4/29/2015	\$214.06	\$214.19	\$214.30	4,563,931	4.10%
4/30/2015	\$216.93	\$216.83	\$216.88	4,263,626	1.33%
5/1/2015	\$223.02	\$222.94	\$223.01	2,553,784	2.77%
5/4/2015	\$222.86	\$222.89	\$222.93	1,627,467	-0.07%
5/5/2015	\$219.24	\$219.16	\$219.21	2,021,039	-1.64%
5/6/2015	\$216.26	\$216.08	\$216.15	1,113,699	-1.37%
5/7/2015	\$218.25	\$218.27	\$218.41	1,295,108	0.92%
5/8/2015	\$221.88	\$221.88	\$221.89	1,282,841	1.65%
5/11/2015	\$223.79	\$223.63	\$223.74	1,282,880	0.86%
5/12/2015	\$222.96	\$222.98	\$223.03	1,691,380	-0.37%
5/13/2015	\$219.90	\$219.90	\$219.97	1,391,488	-1.38%
5/14/2015	\$222.82	\$222.67	\$222.77	931,397	1.32%
5/15/2015	\$224.63	\$224.50	\$224.54	1,181,189	0.81%
5/18/2015	\$225.43	\$225.33	\$225.36	1,220,604	0.36%
5/19/2015	\$227.65	\$227.53	\$227.61	1,267,599	0.98%
5/20/2015	\$228.47	\$228.40	\$228.42	1,360,291	0.36%
5/21/2015	\$233.27	\$233.37	\$233.46	1,719,327	2.08%
5/22/2015	\$237.53	\$237.04	\$237.12	1,945,397	1.81%
5/26/2015	\$235.31	\$235.35	\$235.42	2,044,177	-0.94%
5/27/2015	\$239.12	\$238.93	\$239.02	2,389,990	1.61%
5/28/2015	\$241.73	\$241.56	\$241.60	2,645,713	1.09%
5/29/2015	\$238.77	\$238.55	\$238.63	1,395,498	-1.23%
6/1/2015	\$239.36	\$239.31	\$239.36	1,296,178	0.25%
6/2/2015	\$238.00	\$238.00	\$238.03	1,374,361	-0.57%
6/3/2015	\$239.44	\$239.38	\$239.44	1,059,630	0.60%
6/4/2015	\$232.88	\$232.89	\$232.94	1,341,810	-2.78%
6/5/2015	\$235.41	\$235.30	\$235.35	1,094,802	1.08%
6/8/2015	\$232.85	\$232.93	\$233.02	1,338,678	-1.09%
6/9/2015	\$231.73	\$231.80	\$231.86	1,880,685	-0.48%
6/10/2015	\$229.12	\$228.99	\$229.03	2,786,758	-1.13%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
6/11/2015	\$233.87	\$233.83	\$233.86	2,763,031	2.05%
6/12/2015	\$229.64	\$229.43	\$229.48	1,223,569	-1.83%
6/15/2015	\$230.56	\$230.62	\$230.65	1,119,079	0.40%
6/16/2015	\$228.70	\$228.61	\$228.67	1,688,847	-0.81%
6/17/2015	\$230.20	\$230.26	\$230.36	1,230,759	0.65%
6/18/2015	\$233.95	\$233.80	\$233.84	1,174,910	1.62%
6/19/2015	\$228.22	\$228.23	\$228.24	1,630,257	-2.48%
6/22/2015	\$232.90	\$233.09	\$233.10	1,194,977	2.03%
6/23/2015	\$233.25	\$233.35	\$233.40	1,234,982	0.15%
6/24/2015	\$229.19	\$229.12	\$229.13	2,045,344	-1.76%
6/25/2015	\$233.21	\$233.14	\$233.21	2,049,051	1.74%
6/26/2015	\$228.83	\$229.06	\$229.27	2,578,995	-1.90%
6/29/2015	\$220.31	\$220.32	\$220.35	1,770,703	-3.79%
6/30/2015	\$222.15	\$222.17	\$222.23	2,163,506	0.83%
7/1/2015	\$228.24	\$228.30	\$228.37	1,392,871	2.70%
7/2/2015	\$228.49	\$228.35	\$228.39	981,188	0.11%
7/6/2015	\$226.30	\$226.35	\$226.38	1,677,281	-0.96%
7/7/2015	\$227.40	\$227.35	\$227.44	1,653,350	0.48%
7/8/2015	\$224.46	\$224.64	\$224.66	1,408,604	-1.30%
7/9/2015	\$223.39	\$223.39	\$223.44	1,374,822	-0.48%
7/10/2015	\$232.32	\$232.13	\$232.32	1,441,147	3.92%
7/13/2015	\$235.16	\$235.16	\$235.19	1,339,143	1.22%
7/14/2015	\$236.75	\$236.52	\$236.64	1,110,145	0.67%
7/15/2015	\$235.84	\$235.70	\$235.82	1,600,777	-0.39%
7/16/2015	\$238.85	\$238.90	\$238.96	1,312,146	1.27%
7/17/2015	\$236.10	\$235.95	\$235.99	1,376,406	-1.16%
7/20/2015	\$239.88	\$239.84	\$239.90	1,591,865	1.59%
7/21/2015	\$240.59	\$240.51	\$240.55	1,016,730	0.30%
7/22/2015	\$238.92	\$238.98	\$239.11	1,388,930	-0.70%
7/23/2015	\$253.84	\$253.66	\$253.81	3,764,536	6.06%
7/24/2015	\$251.92	\$251.84	\$251.91	2,257,423	-0.76%
7/27/2015	\$257.30	\$257.60	\$257.64	2,066,753	2.11%
7/28/2015	\$257.95	\$258.03	\$258.11	1,853,808	0.25%
7/29/2015	\$255.23	\$255.02	\$255.11	2,064,732	-1.06%
7/30/2015	\$254.28	\$254.11	\$254.23	1,479,633	-0.37%
7/31/2015	\$257.53	\$257.53	\$257.62	1,314,040	1.27%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
8/3/2015	\$257.21	\$257.09	\$257.13	1,771,755	-0.12%
8/4/2015	\$259.98	\$259.89	\$260.00	1,152,422	1.07%
8/5/2015	\$262.52	\$262.40	\$262.52	1,242,167	0.97%
8/6/2015	\$248.40	\$248.50	\$248.57	3,551,447	-5.53%
8/7/2015	\$247.79	\$247.56	\$247.72	2,158,375	-0.25%
8/10/2015	\$247.15	\$247.16	\$247.24	1,278,108	-0.26%
8/11/2015	\$245.99	\$246.11	\$246.27	1,213,042	-0.47%
8/12/2015	\$244.03	\$244.12	\$244.16	3,042,655	-0.80%
8/13/2015	\$246.17	\$246.17	\$246.32	1,415,104	0.87%
8/14/2015	\$246.57	\$246.57	\$246.64	949,987	0.16%
8/17/2015	\$249.75	\$249.60	\$249.65	954,684	1.28%
8/18/2015	\$249.97	\$249.70	\$249.83	873,743	0.09%
8/19/2015	\$244.91	\$244.71	\$244.84	1,262,141	-2.05%
8/20/2015	\$229.06	\$228.84	\$229.03	3,305,463	-6.69%
8/21/2015	\$222.19	\$221.95	\$222.02	3,924,010	-3.05%
8/24/2015	\$220.25	\$220.05	\$220.25	4,584,048	-0.88%
8/25/2015	\$220.08	\$220.00	\$220.08	2,595,826	-0.08%
8/26/2015	\$227.24	\$227.28	\$227.44	2,156,165	3.20%
8/27/2015	\$234.90	\$234.90	\$235.08	1,816,673	3.32%
8/28/2015	\$236.12	\$236.17	\$236.22	982,983	0.52%
8/31/2015	\$230.60	\$230.49	\$230.57	1,559,055	-2.37%
9/1/2015	\$224.05	\$223.81	\$223.92	2,059,366	-2.88%
9/2/2015	\$232.18	\$231.98	\$232.09	1,805,983	3.56%
9/3/2015	\$228.47	\$228.37	\$228.46	1,485,526	-1.61%
9/4/2015	\$229.53	\$229.50	\$229.53	1,228,176	0.46%
9/8/2015	\$233.80	\$233.50	\$233.77	1,925,268	1.84%
9/9/2015	\$227.85	\$227.85	\$228.05	1,253,048	-2.58%
9/10/2015	\$228.79	\$228.55	\$228.65	1,781,567	0.41%
9/11/2015	\$225.64	\$225.57	\$225.64	1,609,884	-1.39%
9/14/2015	\$222.92	\$222.83	\$222.88	1,603,252	-1.21%
9/15/2015	\$228.22	\$228.09	\$228.17	1,465,343	2.35%
9/16/2015	\$233.21	\$233.28	\$233.38	1,405,466	2.16%
9/17/2015	\$241.01	\$241.00	\$241.14	1,795,781	3.29%
9/18/2015	\$242.14	\$241.66	\$242.10	1,754,405	0.47%
9/21/2015	\$229.00	\$229.15	\$229.30	4,972,044	-5.58%
9/22/2015	\$216.76	\$216.61	\$216.76	4,612,648	-5.49%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
9/23/2015	\$217.21	\$217.07	\$217.16	1,958,189	0.21%
9/24/2015	\$209.50	\$209.50	\$209.54	4,169,919	-3.61%
9/25/2015	\$199.47	\$199.39	\$199.46	6,280,110	-4.91%
9/28/2015	\$166.50	\$166.33	\$166.38	19,751,945	-18.07%
9/29/2015	\$158.08	\$158.08	\$158.09	14,511,879	-5.19%
9/30/2015	\$178.38	\$178.63	\$178.73	11,676,108	12.08%
10/1/2015	\$179.60	\$179.52	\$179.60	6,384,414	0.68%
10/2/2015	\$182.32	\$182.52	\$182.54	7,697,345	1.50%
10/5/2015	\$163.46	\$163.45	\$163.62	11,648,163	-10.92%
10/6/2015	\$166.00	\$165.88	\$165.91	7,376,898	1.54%
10/7/2015	\$169.83	\$169.70	\$169.83	4,183,341	2.28%
10/8/2015	\$171.17	\$171.08	\$171.17	3,644,569	0.79%
10/9/2015	\$175.94	\$175.86	\$175.94	4,358,000	2.75%
10/12/2015	\$173.85	\$173.66	\$173.74	3,255,799	-1.20%
10/13/2015	\$166.50	\$166.49	\$166.50	3,880,617	-4.32%
10/14/2015	\$177.29	\$177.21	\$177.26	8,142,276	6.28%
10/15/2015	\$168.87	\$168.72	\$168.84	10,683,872	-4.87%
10/16/2015	\$177.56	\$177.55	\$177.56	6,033,655	5.02%
10/19/2015	\$163.83	\$163.73	\$163.80	9,997,878	-8.05%
10/20/2015	\$146.74	\$146.66	\$146.76	16,210,064	-11.02%
10/21/2015	\$118.61	\$118.20	\$118.35	88,607,831	-21.28%
10/22/2015	\$109.87	\$110.43	\$110.45	57,766,099	-7.65%
10/23/2015	\$116.16	\$115.81	\$115.89	24,749,273	5.57%
10/26/2015	\$110.04	\$110.04	\$110.07	27,810,071	-5.41%
10/27/2015	\$109.54	\$109.56	\$109.60	10,871,823	-0.46%
10/28/2015	\$117.00	\$116.92	\$116.99	10,701,638	6.59%
10/29/2015	\$111.50	\$111.50	\$111.51	18,818,895	-4.81%
10/30/2015	\$93.77	\$93.79	\$93.81	44,882,470	-17.32%
11/2/2015	\$100.47	\$100.51	\$100.60	26,455,480	6.90%
11/3/2015	\$97.86	\$97.84	\$97.86	15,507,283	-2.63%
11/4/2015	\$91.98	\$91.98	\$92.00	14,566,134	-6.20%
11/5/2015	\$78.77	\$78.76	\$78.77	57,293,517	-15.50%
11/6/2015	\$81.77	\$81.76	\$81.77	25,270,919	3.74%
11/9/2015	\$85.41	\$85.34	\$85.41	19,976,516	4.36%
11/10/2015	\$83.68	\$83.63	\$83.67	28,711,708	-2.05%
11/11/2015	\$78.90	\$78.90	\$78.91	16,933,839	-5.88%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
11/12/2015	\$73.77	\$73.76	\$73.80	17,453,083	-6.72%
11/13/2015	\$75.41	\$75.51	\$75.53	14,631,969	2.20%
11/16/2015	\$73.32	\$73.34	\$73.37	10,267,177	-2.81%
11/17/2015	\$70.32	\$70.32	\$70.39	13,442,769	-4.18%
11/18/2015	\$72.60	\$72.59	\$72.60	11,844,381	3.19%
11/19/2015	\$84.00	\$83.97	\$84.05	25,422,665	14.59%
11/20/2015	\$91.00	\$90.84	\$90.88	24,969,454	8.00%
11/23/2015	\$87.41	\$87.35	\$87.41	25,583,183	-4.02%
11/24/2015	\$87.45	\$87.40	\$87.42	16,530,071	0.05%
11/25/2015	\$87.02	\$86.97	\$87.00	13,068,171	-0.49%
11/27/2015	\$87.09	\$86.87	\$86.90	4,218,736	0.08%
11/30/2015	\$89.96	\$89.94	\$89.96	14,051,833	3.24%
12/1/2015	\$98.78	\$98.67	\$98.72	22,989,513	9.35%
12/2/2015	\$96.23	\$96.19	\$96.23	13,067,448	-2.62%
12/3/2015	\$93.66	\$93.60	\$93.63	9,457,737	-2.71%
12/4/2015	\$95.31	\$95.33	\$95.37	8,677,357	1.75%
12/7/2015	\$92.24	\$92.24	\$92.28	4,856,583	-3.27%
12/8/2015	\$93.86	\$93.88	\$93.91	7,326,711	1.74%
12/9/2015	\$94.40	\$94.42	\$94.45	6,273,906	0.57%
12/10/2015	\$97.19	\$97.14	\$97.19	5,133,587	2.91%
12/11/2015	\$93.06	\$93.08	\$93.10	8,187,721	-4.34%
12/14/2015	\$94.14	\$94.16	\$94.17	5,393,446	1.15%
12/15/2015	\$109.59	\$109.64	\$109.65	24,243,151	15.20%
12/16/2015	\$118.47	\$118.47	\$118.49	23,338,245	7.79%
12/17/2015	\$111.38	\$111.38	\$111.43	9,504,850	-6.17%
12/18/2015	\$108.52	\$108.53	\$108.57	8,060,601	-2.60%
12/21/2015	\$108.76	\$108.76	\$108.81	3,824,821	0.22%
12/22/2015	\$113.12	\$113.18	\$113.24	4,725,729	3.93%
12/23/2015	\$114.94	\$114.96	\$115.00	3,455,829	1.60%
12/24/2015	\$114.11	\$114.12	\$114.15	2,223,220	-0.72%
12/28/2015	\$102.14	\$102.15	\$102.20	15,441,844	-11.08%
12/29/2015	\$101.39	\$101.41	\$101.42	10,007,808	-0.74%
12/30/2015	\$102.33	\$102.28	\$102.30	8,081,255	0.92%
12/31/2015	\$101.65	\$101.64	\$101.65	5,863,395	-0.67%
1/4/2016	\$98.50	\$98.48	\$98.50	9,598,155	-3.15%
1/5/2016	\$100.86	\$100.86	\$100.89	6,154,732	2.37%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
1/6/2016	\$102.40	\$102.42	\$102.47	10,380,248	1.52%
1/7/2016	\$97.39	\$97.39	\$97.44	6,377,553	-5.02%
1/8/2016	\$91.06	\$91.06	\$91.12	7,874,009	-6.72%
1/11/2016	\$85.45	\$85.45	\$85.49	9,928,313	-6.36%
1/12/2016	\$87.91	\$87.94	\$87.97	6,492,973	2.84%
1/13/2016	\$85.54	\$85.49	\$85.54	4,974,971	-2.73%
1/14/2016	\$89.77	\$89.78	\$89.81	5,001,912	4.83%
1/15/2016	\$88.70	\$88.64	\$88.69	7,614,805	-1.20%
1/19/2016	\$88.98	\$88.94	\$88.97	4,061,453	0.32%
1/20/2016	\$89.35	\$89.38	\$89.45	5,863,855	0.41%
1/21/2016	\$90.27	\$90.24	\$90.27	3,171,471	1.02%
1/22/2016	\$88.60	\$88.60	\$88.62	3,919,410	-1.87%
1/25/2016	\$92.63	\$92.63	\$92.70	5,658,298	4.45%
1/26/2016	\$98.57	\$98.61	\$98.66	8,792,371	6.22%
1/27/2016	\$94.43	\$94.42	\$94.45	5,597,542	-4.29%
1/28/2016	\$86.12	\$86.07	\$86.12	7,920,388	-9.21%
1/29/2016	\$90.22	\$90.17	\$90.18	6,444,314	4.65%
2/1/2016	\$95.65	\$95.68	\$95.74	6,153,912	5.84%
2/2/2016	\$91.45	\$91.46	\$91.48	14,245,297	-4.49%
2/3/2016	\$94.19	\$94.12	\$94.17	6,209,853	2.95%
2/4/2016	\$96.94	\$96.96	\$96.99	7,560,986	2.88%
2/5/2016	\$96.59	\$96.59	\$96.62	6,103,199	-0.36%
2/8/2016	\$89.63	\$89.64	\$89.67	5,316,010	-7.48%
2/9/2016	\$86.95	\$86.95	\$86.96	6,729,583	-3.04%
2/10/2016	\$85.96	\$85.90	\$85.94	4,484,257	-1.15%
2/11/2016	\$83.44	\$83.40	\$83.41	7,128,622	-2.98%
2/12/2016	\$88.39	\$88.33	\$88.36	5,312,404	5.76%
2/16/2016	\$91.26	\$91.24	\$91.25	3,870,323	3.20%
2/17/2016	\$94.65	\$94.62	\$94.65	4,511,549	3.65%
2/18/2016	\$94.11	\$94.12	\$94.15	4,640,868	-0.57%
2/19/2016	\$84.99	\$84.99	\$85.01	14,770,677	-10.19%
2/22/2016	\$75.92	\$75.91	\$75.92	31,649,013	-11.29%
2/23/2016	\$79.27	\$79.26	\$79.29	15,372,074	4.32%
2/24/2016	\$83.83	\$83.83	\$83.88	8,903,366	5.59%
2/25/2016	\$84.71	\$84.72	\$84.74	5,757,198	1.04%
2/26/2016	\$80.65	\$80.65	\$80.80	10,084,059	-4.91%

Exhibit-4

Valeant Common Stock Prices, Volume, and Returns

3 January 2012 through 15 March 2016

Date	Valeant Closing Price	Valeant Closing Bid	Valeant Closing Ask	Valeant Trading Volume	Valeant Logarithmic Return
2/29/2016	\$65.80	\$65.79	\$65.80	27,302,372	-20.35%
3/1/2016	\$65.45	\$65.46	\$65.51	41,571,126	-0.53%
3/2/2016	\$67.47	\$67.53	\$67.56	18,257,510	3.04%
3/3/2016	\$64.89	\$64.85	\$64.89	10,829,391	-3.90%
3/4/2016	\$61.31	\$61.30	\$61.31	13,653,409	-5.68%
3/7/2016	\$65.66	\$65.64	\$65.66	14,784,747	6.85%
3/8/2016	\$63.15	\$63.18	\$63.20	6,742,546	-3.90%
3/9/2016	\$66.86	\$66.84	\$66.86	9,882,241	5.71%
3/10/2016	\$66.15	\$66.15	\$66.18	6,829,080	-1.07%
3/11/2016	\$69.55	\$69.56	\$69.60	6,906,623	5.01%
3/14/2016	\$69.04	\$69.00	\$69.03	9,407,547	-0.74%
3/15/2016	\$33.51	\$33.50	\$33.55	138,949,843	-72.28%

Source: CRSP.

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
1/3/2012	1.60%	1.45%
1/4/2012	-0.04%	-0.74%
1/5/2012	0.29%	0.26%
1/6/2012	-0.29%	0.20%
1/9/2012	0.28%	0.67%
1/10/2012	1.04%	2.05%
1/11/2012	0.10%	-0.45%
1/12/2012	0.30%	0.56%
1/13/2012	-0.53%	-0.55%
1/17/2012	0.39%	0.90%
1/18/2012	1.22%	1.02%
1/19/2012	0.56%	-0.02%
1/20/2012	0.09%	-0.25%
1/23/2012	0.16%	0.48%
1/24/2012	-0.08%	-0.69%
1/25/2012	0.99%	1.11%
1/26/2012	-0.49%	0.01%
1/27/2012	0.07%	0.14%
1/30/2012	-0.37%	-0.55%
1/31/2012	-0.01%	0.00%
2/1/2012	1.11%	0.58%
2/2/2012	0.18%	-0.97%
2/3/2012	1.46%	4.30%
2/6/2012	-0.10%	0.98%
2/7/2012	0.14%	-0.20%
2/8/2012	0.22%	-0.13%
2/9/2012	0.10%	-0.71%
2/10/2012	-0.84%	-0.18%
2/13/2012	0.74%	1.24%
2/14/2012	-0.15%	0.46%
2/15/2012	-0.42%	-0.32%
2/16/2012	1.24%	0.59%
2/17/2012	0.14%	-5.49%
2/21/2012	0.02%	-2.63%
2/22/2012	-0.31%	0.23%
2/23/2012	0.57%	0.78%
2/24/2012	0.15%	0.20%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
2/27/2012	0.08%	0.14%
2/28/2012	0.29%	1.35%
2/29/2012	-0.57%	0.03%
3/1/2012	0.68%	1.53%
3/2/2012	-0.49%	-0.28%
3/5/2012	-0.46%	-0.68%
3/6/2012	-1.75%	-1.38%
3/7/2012	0.79%	0.75%
3/8/2012	1.08%	1.53%
3/9/2012	0.45%	0.02%
3/12/2012	-0.14%	-0.16%
3/13/2012	1.75%	1.04%
3/14/2012	-0.39%	-0.49%
3/15/2012	0.65%	0.44%
3/16/2012	0.13%	-0.73%
3/19/2012	0.40%	0.42%
3/20/2012	-0.45%	-0.29%
3/21/2012	-0.11%	0.40%
3/22/2012	-0.81%	0.79%
3/23/2012	0.45%	0.07%
3/26/2012	1.39%	1.12%
3/27/2012	-0.37%	-0.00%
3/28/2012	-0.55%	-0.24%
3/29/2012	-0.19%	0.65%
3/30/2012	0.33%	0.67%
4/2/2012	0.80%	0.20%
4/3/2012	-0.45%	-0.44%
4/4/2012	-1.19%	-1.05%
4/5/2012	-0.08%	0.35%
4/9/2012	-1.14%	-1.82%
4/10/2012	-1.82%	-1.89%
4/11/2012	0.85%	0.35%
4/12/2012	1.50%	0.57%
4/13/2012	-1.25%	0.07%
4/16/2012	-0.06%	0.17%
4/17/2012	1.48%	1.69%
4/18/2012	-0.40%	-0.09%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
4/19/2012	-0.47%	3.41%
4/20/2012	0.16%	-0.58%
4/23/2012	-0.96%	-0.58%
4/24/2012	0.32%	0.68%
4/25/2012	1.37%	0.88%
4/26/2012	0.68%	1.28%
4/27/2012	0.39%	-0.11%
4/30/2012	-0.43%	-0.66%
5/1/2012	0.49%	-0.46%
5/2/2012	-0.20%	-0.88%
5/3/2012	-1.00%	-0.27%
5/4/2012	-1.58%	-1.37%
5/7/2012	0.06%	0.28%
5/8/2012	-0.54%	-0.90%
5/9/2012	-0.60%	0.09%
5/10/2012	0.29%	0.87%
5/11/2012	-0.28%	0.83%
5/14/2012	-1.22%	-0.35%
5/15/2012	-0.60%	-0.70%
5/16/2012	-0.49%	0.00%
5/17/2012	-1.60%	-2.21%
5/18/2012	-0.82%	-0.66%
5/21/2012	1.76%	1.48%
5/22/2012	-0.05%	-0.13%
5/23/2012	0.28%	-0.96%
5/24/2012	0.10%	1.39%
5/25/2012	-0.15%	0.09%
5/29/2012	1.12%	0.83%
5/30/2012	-1.56%	-0.82%
5/31/2012	-0.20%	-0.42%
6/1/2012	-2.48%	-2.53%
6/4/2012	-0.10%	0.58%
6/5/2012	0.78%	0.18%
6/6/2012	2.24%	1.37%
6/7/2012	-0.14%	-0.60%
6/8/2012	0.71%	1.26%
6/11/2012	-1.40%	-0.78%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
6/12/2012	1.16%	0.21%
6/13/2012	-0.70%	-0.59%
6/14/2012	0.94%	1.08%
6/15/2012	1.01%	0.69%
6/18/2012	0.22%	0.44%
6/19/2012	1.15%	0.77%
6/20/2012	-0.15%	-0.14%
6/21/2012	-2.37%	-1.44%
6/22/2012	0.72%	0.86%
6/25/2012	-1.55%	-1.32%
6/26/2012	0.48%	0.10%
6/27/2012	0.90%	1.37%
6/28/2012	-0.21%	-1.28%
6/29/2012	2.53%	2.57%
7/2/2012	0.39%	1.28%
7/3/2012	0.89%	0.76%
7/5/2012	-0.41%	-1.04%
7/6/2012	-1.00%	-0.75%
7/9/2012	-0.22%	0.10%
7/10/2012	-0.88%	-0.79%
7/11/2012	-0.03%	-1.00%
7/12/2012	-0.49%	-0.01%
7/13/2012	1.51%	1.24%
7/16/2012	-0.25%	0.14%
7/17/2012	0.67%	1.19%
7/18/2012	0.62%	-0.44%
7/19/2012	0.28%	0.40%
7/20/2012	-1.00%	-1.67%
7/23/2012	-1.02%	-1.48%
7/24/2012	-0.95%	-1.37%
7/25/2012	0.07%	0.30%
7/26/2012	1.54%	1.61%
7/27/2012	1.87%	3.62%
7/30/2012	-0.08%	-0.45%
7/31/2012	-0.50%	-2.24%
8/1/2012	-0.45%	0.55%
8/2/2012	-0.73%	2.00%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
8/3/2012	1.90%	0.63%
8/6/2012	0.35%	0.51%
8/7/2012	0.63%	0.01%
8/8/2012	0.02%	-0.50%
8/9/2012	0.16%	0.22%
8/10/2012	0.19%	0.22%
8/13/2012	-0.19%	-0.06%
8/14/2012	-0.00%	0.97%
8/15/2012	0.27%	0.34%
8/16/2012	0.79%	-1.37%
8/17/2012	0.26%	-0.11%
8/20/2012	-0.06%	-0.36%
8/21/2012	-0.23%	0.39%
8/22/2012	-0.01%	-0.48%
8/23/2012	-0.74%	-0.53%
8/24/2012	0.55%	1.72%
8/27/2012	-0.06%	-0.13%
8/28/2012	0.02%	0.05%
8/29/2012	0.10%	0.11%
8/30/2012	-0.78%	-0.13%
8/31/2012	0.59%	0.18%
9/4/2012	0.07%	0.69%
9/5/2012	-0.06%	0.19%
9/6/2012	1.93%	1.96%
9/7/2012	0.56%	-0.17%
9/10/2012	-0.57%	0.06%
9/11/2012	0.34%	-0.35%
9/12/2012	0.26%	0.22%
9/13/2012	1.52%	0.69%
9/14/2012	0.61%	1.01%
9/17/2012	-0.46%	2.25%
9/18/2012	-0.18%	1.13%
9/19/2012	0.13%	-0.01%
9/20/2012	-0.19%	0.50%
9/21/2012	0.04%	0.75%
9/24/2012	-0.31%	-0.23%
9/25/2012	-1.09%	-0.31%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
9/26/2012	-0.55%	-0.82%
9/27/2012	1.00%	0.58%
9/28/2012	-0.45%	-0.15%
10/1/2012	0.28%	1.11%
10/2/2012	0.12%	1.12%
10/3/2012	0.25%	0.97%
10/4/2012	0.76%	0.18%
10/5/2012	-0.01%	-0.15%
10/8/2012	-0.36%	0.06%
10/9/2012	-0.98%	-1.43%
10/10/2012	-0.56%	-0.92%
10/11/2012	0.17%	0.41%
10/12/2012	-0.35%	-0.17%
10/15/2012	0.72%	0.13%
10/16/2012	0.99%	1.00%
10/17/2012	0.51%	0.89%
10/18/2012	-0.27%	-0.92%
10/19/2012	-1.58%	-2.20%
10/22/2012	0.02%	-0.18%
10/23/2012	-1.30%	-1.67%
10/24/2012	-0.26%	2.14%
10/25/2012	0.33%	0.17%
10/26/2012	-0.14%	-0.28%
10/31/2012	0.25%	-0.66%
11/1/2012	1.11%	0.92%
11/2/2012	-0.98%	-0.29%
11/5/2012	0.22%	-0.14%
11/6/2012	0.78%	0.56%
11/7/2012	-2.13%	-2.29%
11/8/2012	-1.16%	-1.30%
11/9/2012	0.09%	0.39%
11/12/2012	-0.02%	5.31%
11/13/2012	-0.42%	-1.14%
11/14/2012	-1.48%	-0.98%
11/15/2012	-0.29%	0.08%
11/16/2012	0.62%	1.22%
11/19/2012	1.90%	1.15%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
11/20/2012	0.10%	0.79%
11/21/2012	0.31%	0.02%
11/23/2012	1.26%	1.09%
11/26/2012	-0.16%	-0.46%
11/27/2012	-0.44%	-0.36%
11/28/2012	0.75%	0.33%
11/29/2012	0.54%	0.66%
11/30/2012	0.03%	0.10%
12/3/2012	-0.42%	-0.41%
12/4/2012	-0.13%	-0.04%
12/5/2012	0.18%	0.43%
12/6/2012	0.28%	-0.79%
12/7/2012	0.25%	0.14%
12/10/2012	0.15%	0.84%
12/11/2012	0.61%	1.67%
12/12/2012	0.03%	-0.35%
12/13/2012	-0.59%	-1.22%
12/14/2012	-0.31%	-0.70%
12/17/2012	1.01%	1.08%
12/18/2012	1.10%	0.62%
12/19/2012	-0.47%	-1.22%
12/20/2012	0.49%	-0.27%
12/21/2012	-0.85%	-0.91%
12/24/2012	-0.22%	0.03%
12/26/2012	-0.50%	-0.64%
12/27/2012	-0.07%	-0.02%
12/28/2012	-0.93%	-0.66%
12/31/2012	1.63%	1.17%
1/2/2013	2.47%	1.69%
1/3/2013	-0.19%	0.81%
1/4/2013	0.56%	0.96%
1/7/2013	-0.26%	0.79%
1/8/2013	-0.22%	0.50%
1/9/2013	0.34%	0.94%
1/10/2013	0.68%	0.85%
1/11/2013	0.02%	-0.72%
1/14/2013	-0.03%	-0.11%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
1/15/2013	0.20%	0.27%
1/16/2013	-0.07%	-0.36%
1/17/2013	0.59%	0.28%
1/18/2013	0.29%	0.48%
1/22/2013	0.52%	0.01%
1/23/2013	0.03%	-0.73%
1/24/2013	0.06%	1.29%
1/25/2013	0.52%	0.62%
1/28/2013	-0.13%	-0.75%
1/29/2013	0.36%	0.49%
1/30/2013	-0.39%	0.05%
1/31/2013	-0.08%	-0.41%
2/1/2013	0.92%	2.25%
2/4/2013	-1.11%	-1.73%
2/5/2013	0.92%	1.52%
2/6/2013	0.13%	-0.31%
2/7/2013	-0.21%	-0.15%
2/8/2013	0.54%	1.01%
2/11/2013	-0.10%	-0.49%
2/12/2013	0.22%	0.30%
2/13/2013	0.14%	0.77%
2/14/2013	0.08%	0.27%
2/15/2013	-0.20%	0.13%
2/19/2013	0.69%	0.98%
2/20/2013	-1.34%	-0.97%
2/21/2013	-0.71%	-0.83%
2/22/2013	0.86%	1.48%
2/25/2013	-1.73%	-0.66%
2/26/2013	0.56%	0.34%
2/27/2013	1.22%	1.35%
2/28/2013	-0.06%	-0.13%
3/1/2013	0.18%	0.93%
3/4/2013	0.36%	1.09%
3/5/2013	0.92%	1.56%
3/6/2013	0.17%	0.58%
3/7/2013	0.23%	-0.96%
3/8/2013	0.49%	0.58%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
3/11/2013	0.27%	0.84%
3/12/2013	-0.19%	0.40%
3/13/2013	0.08%	-0.33%
3/14/2013	0.59%	-0.01%
3/15/2013	-0.15%	-0.95%
3/18/2013	-0.53%	-0.56%
3/19/2013	-0.29%	-0.42%
3/20/2013	0.72%	0.69%
3/21/2013	-0.76%	-0.18%
3/22/2013	0.58%	1.16%
3/25/2013	-0.31%	-0.91%
3/26/2013	0.73%	0.90%
3/27/2013	-0.01%	1.77%
3/28/2013	0.40%	1.54%
4/1/2013	-0.54%	-0.81%
4/2/2013	0.27%	1.04%
4/3/2013	-1.19%	-0.91%
4/4/2013	0.38%	0.38%
4/5/2013	-0.35%	-0.65%
4/8/2013	0.66%	-0.04%
4/9/2013	0.37%	1.26%
4/10/2013	1.15%	1.68%
4/11/2013	0.32%	2.23%
4/12/2013	-0.38%	0.12%
4/15/2013	-2.59%	-2.30%
4/16/2013	1.46%	1.26%
4/17/2013	-1.48%	-0.10%
4/18/2013	-0.57%	-1.25%
4/19/2013	0.93%	2.84%
4/22/2013	0.43%	0.90%
4/23/2013	1.01%	-0.35%
4/24/2013	0.22%	-3.23%
4/25/2013	0.49%	1.16%
4/26/2013	-0.25%	0.18%
4/29/2013	0.73%	0.47%
4/30/2013	0.41%	-0.41%
5/1/2013	-1.07%	-3.54%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
5/2/2013	0.94%	2.53%
5/3/2013	1.03%	3.51%
5/6/2013	0.26%	-0.62%
5/7/2013	0.51%	-1.22%
5/8/2013	0.50%	-0.84%
5/9/2013	-0.37%	0.38%
5/10/2013	0.47%	1.42%
5/13/2013	-0.06%	1.23%
5/14/2013	0.93%	2.01%
5/15/2013	0.39%	0.24%
5/16/2013	-0.46%	-1.76%
5/17/2013	0.94%	1.68%
5/20/2013	0.06%	-1.02%
5/21/2013	0.16%	0.90%
5/22/2013	-0.97%	-0.68%
5/23/2013	-0.24%	-0.12%
5/24/2013	-0.10%	0.16%
5/28/2013	0.63%	0.82%
5/29/2013	-0.70%	-0.89%
5/30/2013	0.42%	0.51%
5/31/2013	-1.37%	-1.76%
6/3/2013	0.46%	-1.21%
6/4/2013	-0.56%	-1.33%
6/5/2013	-1.35%	-2.39%
6/6/2013	0.89%	2.21%
6/7/2013	1.13%	1.71%
6/10/2013	0.02%	-0.07%
6/11/2013	-1.09%	-0.18%
6/12/2013	-0.82%	-1.35%
6/13/2013	1.49%	1.56%
6/14/2013	-0.54%	0.36%
6/17/2013	0.72%	-1.05%
6/18/2013	0.73%	1.06%
6/19/2013	-1.35%	-1.98%
6/20/2013	-2.61%	-2.73%
6/21/2013	0.14%	-0.78%
6/24/2013	-1.24%	-2.37%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
6/25/2013	1.03%	1.66%
6/26/2013	0.89%	1.99%
6/27/2013	0.81%	-0.10%
6/28/2013	-0.28%	0.05%
7/1/2013	0.67%	0.43%
7/2/2013	-0.14%	0.45%
7/3/2013	0.04%	-0.24%
7/5/2013	0.90%	1.83%
7/8/2013	0.52%	0.32%
7/9/2013	0.77%	1.42%
7/10/2013	0.06%	1.33%
7/11/2013	1.45%	0.69%
7/12/2013	0.25%	1.81%
7/15/2013	0.23%	0.52%
7/16/2013	-0.38%	-1.19%
7/17/2013	0.30%	0.65%
7/18/2013	0.54%	0.81%
7/19/2013	0.15%	1.85%
7/22/2013	0.28%	-0.26%
7/23/2013	-0.12%	-0.72%
7/24/2013	-0.49%	0.64%
7/25/2013	0.40%	1.42%
7/26/2013	0.01%	2.15%
7/29/2013	-0.38%	-1.28%
7/30/2013	0.04%	0.11%
7/31/2013	0.02%	-0.42%
8/1/2013	1.22%	0.99%
8/2/2013	0.13%	0.56%
8/5/2013	-0.07%	-0.59%
8/6/2013	-0.66%	-1.18%
8/7/2013	-0.45%	0.09%
8/8/2013	0.54%	-0.42%
8/9/2013	-0.19%	-0.39%
8/12/2013	-0.01%	-0.40%
8/13/2013	0.15%	-0.01%
8/14/2013	-0.41%	-0.46%
8/15/2013	-1.30%	-2.22%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
8/16/2013	-0.29%	-0.21%
8/19/2013	-0.71%	0.42%
8/20/2013	0.57%	1.26%
8/21/2013	-0.62%	0.13%
8/22/2013	0.91%	1.35%
8/23/2013	0.44%	-0.50%
8/26/2013	-0.28%	0.65%
8/27/2013	-1.64%	-2.34%
8/28/2013	0.26%	1.76%
8/29/2013	0.32%	1.01%
8/30/2013	-0.48%	-0.61%
9/3/2013	0.45%	1.13%
9/4/2013	0.76%	0.46%
9/5/2013	0.18%	0.07%
9/6/2013	0.11%	-0.24%
9/9/2013	1.08%	1.43%
9/10/2013	0.72%	0.55%
9/11/2013	0.27%	-0.10%
9/12/2013	-0.40%	0.57%
9/13/2013	0.27%	0.28%
9/16/2013	0.51%	-0.10%
9/17/2013	0.50%	-0.29%
9/18/2013	1.25%	1.46%
9/19/2013	-0.11%	0.26%
9/20/2013	-0.73%	-0.23%
9/23/2013	-0.42%	-1.25%
9/24/2013	-0.12%	0.13%
9/25/2013	-0.17%	-0.95%
9/26/2013	0.40%	1.17%
9/27/2013	-0.36%	0.65%
9/30/2013	-0.49%	-0.75%
10/1/2013	0.87%	0.63%
10/2/2013	-0.07%	-0.34%
10/3/2013	-0.87%	-0.68%
10/4/2013	0.67%	1.54%
10/7/2013	-0.85%	-1.44%
10/8/2013	-1.32%	-2.89%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
10/9/2013	-0.05%	-0.71%
10/10/2013	2.08%	3.92%
10/11/2013	0.69%	0.19%
10/14/2013	0.41%	0.94%
10/15/2013	-0.69%	-0.54%
10/16/2013	1.27%	2.27%
10/17/2013	0.77%	1.78%
10/18/2013	0.69%	0.43%
10/21/2013	0.01%	-1.09%
10/22/2013	0.55%	1.47%
10/23/2013	-0.53%	0.40%
10/24/2013	0.40%	1.15%
10/25/2013	0.31%	0.10%
10/28/2013	0.03%	-0.92%
10/29/2013	0.44%	1.22%
10/30/2013	-0.57%	2.07%
10/31/2013	-0.35%	-1.03%
11/1/2013	0.14%	0.41%
11/4/2013	0.43%	-1.02%
11/5/2013	-0.30%	0.71%
11/6/2013	0.30%	-1.58%
11/7/2013	-1.40%	-1.56%
11/8/2013	1.23%	2.38%
11/11/2013	0.10%	0.91%
11/12/2013	-0.22%	0.49%
11/13/2013	0.85%	1.40%
11/14/2013	0.46%	0.82%
11/15/2013	0.44%	1.02%
11/18/2013	-0.46%	-0.95%
11/19/2013	-0.34%	0.45%
11/20/2013	-0.33%	1.36%
11/21/2013	0.86%	0.52%
11/22/2013	0.46%	2.09%
11/25/2013	-0.14%	0.29%
11/26/2013	0.11%	-0.17%
11/27/2013	0.27%	0.10%
11/29/2013	0.02%	0.07%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
12/2/2013	-0.37%	0.35%
12/3/2013	-0.37%	-1.79%
12/4/2013	-0.10%	-0.19%
12/5/2013	-0.35%	0.73%
12/6/2013	0.96%	1.33%
12/9/2013	0.19%	0.59%
12/10/2013	-0.28%	-2.24%
12/11/2013	-1.21%	-2.44%
12/12/2013	-0.26%	-0.01%
12/13/2013	0.13%	0.75%
12/16/2013	0.64%	0.62%
12/17/2013	-0.23%	-1.00%
12/18/2013	1.44%	3.56%
12/19/2013	-0.10%	-0.01%
12/20/2013	0.69%	1.19%
12/23/2013	0.62%	0.62%
12/24/2013	0.35%	0.07%
12/26/2013	0.40%	0.52%
12/27/2013	-0.01%	-0.38%
12/30/2013	0.03%	0.60%
12/31/2013	0.42%	0.34%
1/2/2014	-0.88%	-0.34%
1/3/2014	0.05%	-0.28%
1/6/2014	-0.34%	-1.12%
1/7/2014	0.61%	0.39%
1/8/2014	0.02%	2.99%
1/9/2014	0.01%	0.80%
1/10/2014	0.36%	0.99%
1/13/2014	-1.17%	-1.62%
1/14/2014	1.02%	2.65%
1/15/2014	0.51%	-0.35%
1/16/2014	-0.03%	1.14%
1/17/2014	-0.35%	0.56%
1/21/2014	0.33%	1.97%
1/22/2014	0.15%	0.02%
1/23/2014	-0.82%	-0.60%
1/24/2014	-2.13%	-2.09%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
1/27/2014	-0.67%	-1.13%
1/28/2014	0.73%	1.96%
1/29/2014	-1.00%	-1.09%
1/30/2014	1.14%	2.02%
1/31/2014	-0.58%	-0.47%
2/3/2014	-2.34%	-2.52%
2/4/2014	0.76%	2.83%
2/5/2014	-0.19%	-2.30%
2/6/2014	1.18%	-1.23%
2/7/2014	1.25%	2.46%
2/10/2014	0.16%	1.94%
2/11/2014	1.05%	0.77%
2/12/2014	0.12%	0.20%
2/13/2014	0.69%	0.96%
2/14/2014	0.41%	-0.72%
2/18/2014	0.32%	4.98%
2/19/2014	-0.69%	0.47%
2/20/2014	0.64%	1.72%
2/21/2014	-0.08%	-0.54%
2/24/2014	0.62%	0.83%
2/25/2014	-0.13%	0.62%
2/26/2014	0.10%	0.43%
2/27/2014	0.49%	0.91%
2/28/2014	0.17%	-1.50%
3/3/2014	-0.66%	-1.09%
3/4/2014	1.53%	2.20%
3/5/2014	0.04%	-0.54%
3/6/2014	0.17%	-3.24%
3/7/2014	-0.08%	-0.08%
3/10/2014	-0.13%	-0.14%
3/11/2014	-0.55%	-0.14%
3/12/2014	0.13%	0.08%
3/13/2014	-1.12%	-1.60%
3/14/2014	-0.14%	-0.99%
3/17/2014	0.82%	0.49%
3/18/2014	0.76%	2.13%
3/19/2014	-0.68%	-1.06%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
3/20/2014	0.47%	-1.02%
3/21/2014	-0.29%	-3.82%
3/24/2014	-0.61%	-0.77%
3/25/2014	0.34%	0.75%
3/26/2014	-0.82%	-1.13%
3/27/2014	-0.11%	-1.20%
3/28/2014	0.45%	-1.56%
3/31/2014	0.91%	2.13%
4/1/2014	0.82%	2.00%
4/2/2014	0.28%	0.60%
4/3/2014	-0.31%	-0.62%
4/4/2014	-1.27%	-1.91%
4/7/2014	-1.17%	-1.72%
4/8/2014	0.54%	-2.14%
4/9/2014	1.12%	2.18%
4/10/2014	-2.10%	-5.50%
4/11/2014	-0.98%	0.02%
4/14/2014	0.65%	0.92%
4/15/2014	0.52%	1.86%
4/16/2014	1.06%	2.08%
4/17/2014	0.23%	0.38%
4/21/2014	0.35%	2.99%
4/22/2014	0.55%	4.11%
4/23/2014	-0.28%	0.64%
4/24/2014	0.07%	0.06%
4/25/2014	-0.95%	-0.29%
4/28/2014	0.11%	-0.31%
4/29/2014	0.56%	1.31%
4/30/2014	0.34%	1.82%
5/1/2014	0.08%	1.07%
5/2/2014	-0.03%	-1.15%
5/5/2014	0.13%	1.69%
5/6/2014	-0.88%	-1.93%
5/7/2014	0.44%	-0.51%
5/8/2014	-0.27%	-1.05%
5/9/2014	0.16%	0.24%
5/12/2014	1.11%	1.15%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
5/13/2014	-0.07%	0.55%
5/14/2014	-0.47%	0.13%
5/15/2014	-0.84%	-0.47%
5/16/2014	0.34%	0.55%
5/19/2014	0.43%	0.77%
5/20/2014	-0.70%	-0.65%
5/21/2014	0.74%	0.84%
5/22/2014	0.35%	1.43%
5/23/2014	0.48%	-0.41%
5/27/2014	0.59%	0.44%
5/28/2014	-0.13%	-1.35%
5/29/2014	0.49%	0.77%
5/30/2014	0.06%	0.20%
6/2/2014	0.07%	0.86%
6/3/2014	-0.04%	0.35%
6/4/2014	0.25%	-0.64%
6/5/2014	0.72%	-0.20%
6/6/2014	0.51%	-0.19%
6/9/2014	0.19%	-1.97%
6/10/2014	-0.04%	0.03%
6/11/2014	-0.31%	1.14%
6/12/2014	-0.57%	-0.42%
6/13/2014	0.31%	0.15%
6/16/2014	0.14%	0.09%
6/17/2014	0.29%	0.00%
6/18/2014	0.69%	0.41%
6/19/2014	0.17%	-0.25%
6/20/2014	0.21%	1.81%
6/23/2014	0.01%	0.16%
6/24/2014	-0.70%	0.51%
6/25/2014	0.51%	1.04%
6/26/2014	-0.06%	0.51%
6/27/2014	0.29%	0.47%
6/30/2014	0.10%	-0.58%
7/1/2014	0.68%	1.53%
7/2/2014	-0.03%	1.12%
7/3/2014	0.49%	0.22%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
7/7/2014	-0.61%	-1.14%
7/8/2014	-0.74%	-0.50%
7/9/2014	0.45%	0.76%
7/10/2014	-0.49%	0.17%
7/11/2014	0.08%	0.01%
7/14/2014	0.45%	1.77%
7/15/2014	-0.33%	-1.07%
7/16/2014	0.38%	-1.01%
7/17/2014	-1.10%	-1.52%
7/18/2014	1.02%	3.03%
7/21/2014	-0.22%	-0.18%
7/22/2014	0.51%	0.52%
7/23/2014	0.19%	1.15%
7/24/2014	0.02%	-0.29%
7/25/2014	-0.50%	-0.66%
7/28/2014	-0.05%	0.31%
7/29/2014	-0.37%	0.82%
7/30/2014	0.05%	0.62%
7/31/2014	-1.95%	-2.22%
8/1/2014	-0.35%	0.26%
8/4/2014	0.71%	-0.08%
8/5/2014	-0.89%	-0.89%
8/6/2014	0.03%	-1.11%
8/7/2014	-0.49%	-1.45%
8/8/2014	1.02%	0.99%
8/11/2014	0.48%	-0.53%
8/12/2014	-0.22%	0.01%
8/13/2014	0.66%	1.00%
8/14/2014	0.42%	2.40%
8/15/2014	0.03%	2.00%
8/18/2014	0.85%	0.59%
8/19/2014	0.47%	1.51%
8/20/2014	0.20%	0.04%
8/21/2014	0.25%	0.86%
8/22/2014	-0.14%	1.13%
8/25/2014	0.45%	1.41%
8/26/2014	0.22%	-0.40%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
8/27/2014	0.06%	0.29%
8/28/2014	-0.18%	0.04%
8/29/2014	0.38%	0.18%
9/2/2014	0.00%	1.26%
9/3/2014	-0.06%	-0.10%
9/4/2014	-0.24%	-1.40%
9/5/2014	0.44%	-0.37%
9/8/2014	-0.28%	0.76%
9/9/2014	-0.63%	-0.52%
9/10/2014	0.33%	1.18%
9/11/2014	0.13%	-0.53%
9/12/2014	-0.66%	-1.17%
9/15/2014	-0.29%	-1.35%
9/16/2014	0.70%	2.49%
9/17/2014	0.08%	-0.38%
9/18/2014	0.45%	1.04%
9/19/2014	-0.24%	0.08%
9/22/2014	-1.01%	-1.00%
9/23/2014	-0.60%	0.59%
9/24/2014	0.71%	2.95%
9/25/2014	-1.57%	-1.13%
9/26/2014	0.84%	0.94%
9/29/2014	-0.24%	-0.39%
9/30/2014	-0.41%	-0.94%
10/1/2014	-1.30%	-0.56%
10/2/2014	0.08%	-0.72%
10/3/2014	0.91%	2.98%
10/6/2014	-0.16%	-0.90%
10/7/2014	-1.51%	-0.45%
10/8/2014	1.58%	3.00%
10/9/2014	-2.14%	-2.24%
10/10/2014	-1.34%	-1.80%
10/13/2014	-1.56%	-3.53%
10/14/2014	0.23%	-1.78%
10/15/2014	-0.45%	-2.56%
10/16/2014	0.38%	1.11%
10/17/2014	1.07%	2.16%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
10/20/2014	0.92%	1.29%
10/21/2014	1.90%	3.48%
10/22/2014	-0.89%	-0.84%
10/23/2014	1.22%	1.22%
10/24/2014	0.60%	2.17%
10/27/2014	-0.22%	0.51%
10/28/2014	1.36%	0.66%
10/29/2014	-0.22%	-1.05%
10/30/2014	0.50%	2.55%
10/31/2014	1.15%	-0.77%
11/3/2014	-0.07%	-0.28%
11/4/2014	-0.46%	-0.10%
11/5/2014	0.49%	-1.33%
11/6/2014	0.38%	0.53%
11/7/2014	0.20%	-0.66%
11/10/2014	0.27%	0.32%
11/11/2014	0.11%	0.18%
11/12/2014	0.06%	-0.65%
11/13/2014	-0.09%	-1.01%
11/14/2014	0.13%	-0.72%
11/17/2014	-0.02%	0.69%
11/18/2014	0.55%	3.96%
11/19/2014	-0.24%	-1.08%
11/20/2014	0.33%	-1.67%
11/21/2014	0.53%	0.07%
11/24/2014	0.32%	1.03%
11/25/2014	-0.04%	0.50%
11/26/2014	0.28%	0.24%
11/28/2014	-0.61%	0.06%
12/1/2014	-0.90%	-1.00%
12/2/2014	0.59%	0.78%
12/3/2014	0.52%	-0.20%
12/4/2014	-0.21%	0.65%
12/5/2014	0.15%	1.01%
12/8/2014	-0.95%	0.23%
12/9/2014	0.17%	-0.15%
12/10/2014	-1.76%	-1.31%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
12/11/2014	0.41%	0.26%
12/12/2014	-1.53%	-0.99%
12/15/2014	-0.77%	-0.05%
12/16/2014	-0.59%	-2.04%
12/17/2014	2.15%	1.95%
12/18/2014	2.13%	2.44%
12/19/2014	0.46%	1.58%
12/22/2014	0.33%	-7.08%
12/23/2014	0.22%	-2.61%
12/24/2014	0.06%	0.93%
12/26/2014	0.37%	1.68%
12/29/2014	0.12%	1.99%
12/30/2014	-0.43%	-1.11%
12/31/2014	-0.88%	-0.81%
1/2/2015	-0.02%	0.75%
1/5/2015	-1.84%	-0.70%
1/6/2015	-0.97%	-0.78%
1/7/2015	1.11%	2.44%
1/8/2015	1.67%	1.36%
1/9/2015	-0.76%	-0.89%
1/12/2015	-0.78%	0.57%
1/13/2015	-0.23%	-0.34%
1/14/2015	-0.52%	0.04%
1/15/2015	-0.92%	-1.71%
1/16/2015	1.37%	2.60%
1/20/2015	0.03%	1.15%
1/21/2015	0.45%	-0.03%
1/22/2015	1.46%	0.59%
1/23/2015	-0.42%	0.17%
1/26/2015	0.44%	0.83%
1/27/2015	-1.01%	-1.01%
1/28/2015	-1.42%	-2.03%
1/29/2015	0.84%	0.64%
1/30/2015	-1.22%	-0.28%
2/2/2015	1.22%	0.41%
2/3/2015	1.49%	0.10%
2/4/2015	-0.44%	-2.07%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
2/5/2015	1.14%	2.01%
2/6/2015	-0.36%	-1.07%
2/9/2015	-0.41%	-1.00%
2/10/2015	0.86%	1.42%
2/11/2015	-0.04%	-0.15%
2/12/2015	1.04%	0.49%
2/13/2015	0.47%	0.69%
2/17/2015	0.17%	0.80%
2/18/2015	0.02%	0.25%
2/19/2015	-0.10%	0.24%
2/20/2015	0.57%	1.18%
2/23/2015	-0.06%	0.17%
2/24/2015	0.23%	-0.26%
2/25/2015	0.07%	0.12%
2/26/2015	-0.15%	0.22%
2/27/2015	-0.26%	-0.48%
3/2/2015	0.55%	0.95%
3/3/2015	-0.41%	-0.77%
3/4/2015	-0.38%	0.81%
3/5/2015	0.16%	0.77%
3/6/2015	-1.39%	-1.91%
3/9/2015	0.29%	0.59%
3/10/2015	-1.56%	-1.25%
3/11/2015	-0.02%	0.11%
3/12/2015	1.19%	1.29%
3/13/2015	-0.55%	-0.04%
3/16/2015	1.17%	2.37%
3/17/2015	-0.17%	0.05%
3/18/2015	1.20%	1.40%
3/19/2015	-0.46%	0.84%
3/20/2015	0.93%	1.69%
3/23/2015	-0.10%	-1.74%
3/24/2015	-0.46%	-0.96%
3/25/2015	-1.48%	-2.74%
3/26/2015	-0.22%	0.17%
3/27/2015	0.25%	0.55%
3/30/2015	1.15%	0.46%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
3/31/2015	-0.71%	-2.32%
4/1/2015	-0.27%	-1.12%
4/2/2015	0.40%	-0.04%
4/6/2015	0.65%	-0.16%
4/7/2015	-0.21%	0.55%
4/8/2015	0.36%	2.03%
4/9/2015	0.34%	0.52%
4/10/2015	0.46%	0.87%
4/13/2015	-0.37%	-0.34%
4/14/2015	0.19%	0.19%
4/15/2015	0.62%	0.79%
4/16/2015	-0.04%	-0.39%
4/17/2015	-1.14%	-0.88%
4/20/2015	0.80%	0.25%
4/21/2015	-0.10%	1.45%
4/22/2015	0.41%	0.08%
4/23/2015	0.35%	0.53%
4/24/2015	0.12%	-1.26%
4/27/2015	-0.48%	-2.34%
4/28/2015	0.25%	-0.32%
4/29/2015	-0.39%	-0.08%
4/30/2015	-1.08%	-1.87%
5/1/2015	0.92%	2.33%
5/4/2015	0.30%	0.32%
5/5/2015	-1.16%	-1.39%
5/6/2015	-0.34%	-0.34%
5/7/2015	0.34%	0.45%
5/8/2015	1.20%	2.16%
5/11/2015	-0.40%	0.53%
5/12/2015	-0.22%	-0.37%
5/13/2015	0.02%	0.09%
5/14/2015	0.97%	1.13%
5/15/2015	0.11%	0.02%
5/18/2015	0.33%	0.74%
5/19/2015	-0.14%	0.14%
5/20/2015	-0.03%	0.17%
5/21/2015	0.25%	0.27%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
5/22/2015	-0.22%	-0.13%
5/26/2015	-1.05%	-1.25%
5/27/2015	0.86%	1.70%
5/28/2015	-0.12%	0.23%
5/29/2015	-0.58%	-1.16%
6/1/2015	0.15%	0.75%
6/2/2015	0.04%	-0.74%
6/3/2015	0.26%	0.17%
6/4/2015	-0.89%	-0.46%
6/5/2015	-0.00%	0.07%
6/8/2015	-0.66%	-0.61%
6/9/2015	-0.00%	0.27%
6/10/2015	1.15%	1.21%
6/11/2015	0.19%	1.10%
6/12/2015	-0.62%	-1.23%
6/15/2015	-0.41%	0.05%
6/16/2015	0.49%	0.26%
6/17/2015	0.17%	-0.04%
6/18/2015	0.92%	1.77%
6/19/2015	-0.49%	-0.04%
6/22/2015	0.58%	1.05%
6/23/2015	0.13%	0.40%
6/24/2015	-0.74%	-0.77%
6/25/2015	-0.27%	-0.10%
6/26/2015	-0.08%	-0.24%
6/29/2015	-2.17%	-2.89%
6/30/2015	0.30%	1.02%
7/1/2015	0.55%	0.98%
7/2/2015	-0.06%	0.11%
7/6/2015	-0.45%	0.06%
7/7/2015	0.50%	0.56%
7/8/2015	-1.66%	-2.09%
7/9/2015	0.27%	0.41%
7/10/2015	1.26%	1.04%
7/13/2015	1.02%	1.06%
7/14/2015	0.47%	1.49%
7/15/2015	-0.25%	0.33%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
7/16/2015	0.69%	0.71%
7/17/2015	-0.06%	-0.10%
7/20/2015	-0.12%	0.38%
7/21/2015	-0.41%	-0.61%
7/22/2015	-0.24%	-0.07%
7/23/2015	-0.55%	-0.21%
7/24/2015	-1.01%	-4.77%
7/27/2015	-0.71%	0.20%
7/28/2015	1.22%	2.40%
7/29/2015	0.75%	-0.04%
7/30/2015	0.08%	0.16%
7/31/2015	-0.08%	0.63%
8/3/2015	-0.37%	0.40%
8/4/2015	-0.17%	-0.32%
8/5/2015	0.26%	0.72%
8/6/2015	-0.79%	-3.19%
8/7/2015	-0.33%	-0.02%
8/10/2015	1.30%	1.05%
8/11/2015	-0.93%	-0.95%
8/12/2015	0.07%	0.06%
8/13/2015	-0.21%	-0.40%
8/14/2015	0.38%	0.12%
8/17/2015	0.57%	1.02%
8/18/2015	-0.35%	-0.17%
8/19/2015	-0.88%	-0.33%
8/20/2015	-2.19%	-2.36%
8/21/2015	-2.84%	-4.06%
8/24/2015	-3.93%	-4.29%
8/25/2015	-1.03%	-0.43%
8/26/2015	3.32%	4.71%
8/27/2015	2.41%	1.90%
8/28/2015	0.25%	-0.34%
8/31/2015	-0.73%	-2.32%
9/1/2015	-2.86%	-2.77%
9/2/2015	1.62%	2.65%
9/3/2015	0.18%	-1.35%
9/4/2015	-1.38%	-0.81%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
9/8/2015	2.34%	3.12%
9/9/2015	-1.29%	-1.72%
9/10/2015	0.44%	1.25%
9/11/2015	0.34%	1.00%
9/14/2015	-0.42%	-0.20%
9/15/2015	1.14%	1.48%
9/16/2015	0.95%	0.30%
9/17/2015	-0.07%	1.23%
9/18/2015	-1.54%	-1.84%
9/21/2015	0.33%	-2.62%
9/22/2015	-1.37%	-0.37%
9/23/2015	-0.35%	-0.66%
9/24/2015	-0.37%	-1.18%
9/25/2015	-0.21%	-3.06%
9/28/2015	-2.74%	-5.26%
9/29/2015	-0.09%	0.91%
9/30/2015	1.92%	3.40%
10/1/2015	0.19%	1.52%
10/2/2015	1.51%	2.16%
10/5/2015	1.86%	-0.29%
10/6/2015	-0.31%	-2.53%
10/7/2015	0.98%	1.52%
10/8/2015	0.85%	0.75%
10/9/2015	0.14%	0.06%
10/12/2015	-0.02%	-0.46%
10/13/2015	-0.78%	-2.18%
10/14/2015	-0.43%	0.46%
10/15/2015	1.46%	2.46%
10/16/2015	0.34%	0.98%
10/19/2015	-0.07%	0.27%
10/20/2015	-0.12%	-2.44%
10/21/2015	-0.81%	-0.63%
10/22/2015	1.39%	1.33%
10/23/2015	0.95%	2.13%
10/26/2015	-0.28%	0.81%
10/27/2015	-0.45%	2.88%
10/28/2015	1.36%	0.44%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
10/29/2015	-0.22%	0.67%
10/30/2015	-0.40%	-1.00%
11/2/2015	1.24%	1.89%
11/3/2015	0.31%	-0.38%
11/4/2015	-0.34%	-0.34%
11/5/2015	-0.14%	-1.12%
11/6/2015	-0.04%	-0.68%
11/9/2015	-0.97%	-0.87%
11/10/2015	0.13%	0.73%
11/11/2015	-0.41%	-0.66%
11/12/2015	-1.46%	-2.19%
11/13/2015	-0.98%	-0.25%
11/16/2015	1.37%	1.31%
11/17/2015	-0.14%	0.68%
11/18/2015	1.52%	3.17%
11/19/2015	-0.10%	-1.21%
11/20/2015	0.30%	0.78%
11/23/2015	-0.07%	-0.23%
11/24/2015	0.24%	0.09%
11/25/2015	0.12%	0.82%
11/27/2015	0.08%	0.01%
11/30/2015	-0.39%	-1.74%
12/1/2015	0.95%	1.53%
12/2/2015	-1.08%	-1.06%
12/3/2015	-1.44%	-2.75%
12/4/2015	1.63%	2.95%
12/7/2015	-0.98%	-0.85%
12/8/2015	-0.61%	0.47%
12/9/2015	-0.66%	-1.44%
12/10/2015	0.20%	0.86%
12/11/2015	-2.00%	-2.24%
12/14/2015	0.16%	0.98%
12/15/2015	1.12%	1.53%
12/16/2015	1.48%	1.45%
12/17/2015	-1.47%	-1.33%
12/18/2015	-1.52%	-1.35%
12/21/2015	0.71%	0.97%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
12/22/2015	0.88%	0.59%
12/23/2015	1.36%	1.38%
12/24/2015	-0.08%	0.18%
12/28/2015	-0.33%	-0.86%
12/29/2015	1.00%	1.50%
12/30/2015	-0.74%	-0.47%
12/31/2015	-0.82%	-0.96%
1/4/2016	-1.50%	-2.42%
1/5/2016	0.14%	0.87%
1/6/2016	-1.39%	-0.67%
1/7/2016	-2.42%	-3.25%
1/8/2016	-1.10%	-1.36%
1/11/2016	-0.17%	-1.57%
1/12/2016	0.61%	1.15%
1/13/2016	-2.62%	-3.76%
1/14/2016	1.53%	3.31%
1/15/2016	-2.19%	-1.72%
1/19/2016	-0.24%	-0.07%
1/20/2016	-1.07%	1.04%
1/21/2016	0.57%	-1.41%
1/22/2016	2.22%	2.23%
1/25/2016	-1.68%	-1.62%
1/26/2016	1.58%	0.28%
1/27/2016	-1.06%	-1.47%
1/28/2016	0.51%	-2.44%
1/29/2016	2.42%	1.07%
2/1/2016	-0.04%	-0.20%
2/2/2016	-2.02%	-2.38%
2/3/2016	0.57%	1.81%
2/4/2016	0.36%	-0.01%
2/5/2016	-1.98%	-2.06%
2/8/2016	-1.71%	-0.73%
2/9/2016	-0.31%	0.65%
2/10/2016	0.03%	0.70%
2/11/2016	-1.20%	-2.63%
2/12/2016	1.99%	1.79%
2/16/2016	1.75%	2.37%

Exhibit-5

Market and Sector Index Returns

3 January 2012 through 15 March 2016

Date	Market Index Return	Sector Index Return
2/17/2016	1.79%	1.60%
2/18/2016	-0.42%	-1.57%
2/19/2016	-0.02%	-0.19%
2/22/2016	1.42%	0.70%
2/23/2016	-1.19%	-1.30%
2/24/2016	0.50%	0.33%
2/25/2016	1.10%	0.82%
2/26/2016	0.03%	-0.41%
2/29/2016	-0.59%	-1.83%
3/1/2016	2.21%	3.06%
3/2/2016	0.57%	0.26%
3/3/2016	0.56%	-0.97%
3/4/2016	0.41%	-0.41%
3/7/2016	0.32%	1.60%
3/8/2016	-1.36%	-1.44%
3/9/2016	0.56%	-0.97%
3/10/2016	-0.13%	-0.17%
3/11/2016	1.73%	1.73%
3/14/2016	-0.16%	-0.24%
3/15/2016	-0.45%	-1.76%

Sources: Bloomberg, CRSP, and Crowinshield Financial Research, Inc. computations.

Exhibit-6

Valeant Common Stock Regression Results

Estimation Period: 252 Trading Days Prior to Event Date

Event Date	Coefficients			Standard Error			t -statistic			Regression Statistics		
	Intercept	Market Index	Sector Index	Intercept	Market Index	Sector Index	Intercept	Market Index	Sector Index	R Squared	Adjusted R Squared	Standard Error
4 January 2013	0.000	0.748	0.411	0.001	0.157	0.118	0.18	4.76	3.50	0.368	0.347	1.59%
28 February 2013	0.001	0.672	0.440	0.001	0.160	0.131	0.63	4.20	3.37	0.371	0.351	1.52%
2 May 2013	0.001	0.742	0.396	0.001	0.165	0.125	0.56	4.49	3.17	0.354	0.333	1.55%
28 May 2013	0.001	0.661	0.465	0.001	0.186	0.133	0.87	3.56	3.49	0.283	0.259	1.74%
7 August 2013	0.001	0.576	0.363	0.001	0.186	0.121	1.39	3.09	2.99	0.243	0.218	1.65%
31 October 2013	0.001	0.664	0.289	0.001	0.171	0.106	1.33	3.88	2.73	0.312	0.287	1.45%
7 January 2014	0.001	0.770	0.311	0.001	0.191	0.111	1.01	4.02	2.80	0.407	0.388	1.47%
27 February 2014	0.001	0.712	0.408	0.001	0.182	0.100	1.02	3.92	4.06	0.430	0.409	1.51%
22 April 2014	0.000	0.745	0.516	0.001	0.189	0.095	0.10	3.94	5.43	0.492	0.473	1.57%
8 May 2014	0.000	0.682	0.554	0.001	0.191	0.098	0.02	3.57	5.65	0.494	0.476	1.56%
31 July 2014	-0.001	0.684	0.594	0.001	0.184	0.091	-0.95	3.71	6.55	0.527	0.510	1.42%
24 September 2014	-0.002	0.556	0.662	0.001	0.190	0.090	-1.67	2.92	7.36	0.541	0.524	1.44%
20 October 2014	-0.002	0.526	0.658	0.001	0.187	0.091	-1.58	2.81	7.27	0.534	0.515	1.48%
8 January 2015	-0.001	0.472	0.609	0.001	0.160	0.078	-0.80	2.95	7.80	0.497	0.478	1.46%
23 February 2015	-0.001	0.440	0.562	0.001	0.163	0.084	-0.65	2.70	6.73	0.548	0.529	1.46%
29 April 2015	0.000	0.298	0.534	0.001	0.161	0.088	0.15	1.85	6.05	0.508	0.490	1.43%
23 July 2015	0.001	0.407	0.538	0.001	0.149	0.086	1.22	2.73	6.26	0.579	0.563	1.31%
19 October 2015	0.000	0.167	0.858	0.001	0.201	0.124	-0.05	0.83	6.89	0.458	0.441	2.00%
26 October 2015	-0.001	0.130	0.930	0.002	0.253	0.156	-0.87	0.51	5.96	0.366	0.345	2.53%
30 October 2015	-0.001	0.276	0.854	0.002	0.255	0.157	-0.89	1.08	5.44	0.422	0.400	2.59%
10 November 2015	-0.002	0.212	0.928	0.002	0.283	0.175	-0.93	0.75	5.31	0.390	0.365	2.83%
16 December 2015	-0.001	0.349	0.916	0.002	0.336	0.208	-0.45	1.04	4.40	0.351	0.321	3.28%
23 February 2016	-0.003	0.033	1.274	0.002	0.383	0.262	-1.14	0.09	4.87	0.338	0.308	3.66%
29 February 2016	-0.003	0.037	1.279	0.002	0.384	0.263	-1.14	0.10	4.86	0.363	0.334	3.68%
15 March 2016	-0.003	0.075	1.262	0.002	0.386	0.265	-1.07	0.19	4.77	0.676	0.660	3.75%

Exhibit-7a
Valeant Event Study Results
Acquisition Announcement Events

Date	Valeant Closing Price	Valeant Prior Day Closing Price	Valeant Logarithmic Return	Market Index Logarithmic Return	Sector Index Logarithmic Return	Valeant Explained Return	Valeant Residual Return	<i>t</i> -statistic
28 May 2013	\$91.80	\$84.47	8.32%	0.63%	0.82%	0.89%	7.43%	4.28
22 April 2014	\$135.41	\$126.01	7.19%	0.55%	4.11%	2.54%	4.65%	2.96
23 February 2015	\$198.75	\$173.26	13.73%	-0.06%	0.17%	0.01%	13.72%	9.38

Notes:

The threshold for statistical significance at the 95% confidence level using a two-tailed test is a *t* -statistic of greater (less) than positive (negative) 1.96.

Exhibit-7b
Valeant Event Study Results
Philidor Disclosure Events

Date	Valeant Closing Price	Valeant Prior Day Closing Price	Valeant Logarithmic Return	Market Index Logarithmic Return	Sector Index Logarithmic Return	Valeant Explained Return	Valeant Residual Return	<i>t</i> -statistic
19 October 2015	\$163.83	\$177.56	-8.05%	-0.07%	0.27%	0.21%	-8.26%	-4.12
26 October 2015	\$110.04	\$116.16	-5.41%	-0.28%	0.81%	0.57%	-5.98%	-2.36
30 October 2015	\$93.77	\$111.50	-17.32%	-0.40%	-1.00%	-1.11%	-16.21%	-6.25
10 November 2015	\$83.68	\$85.41	-2.05%	0.13%	0.73%	0.54%	-2.58%	-0.91
23 February 2016	\$79.27	\$75.92	4.32%	-1.19%	-1.30%	-1.96%	6.28%	1.72
29 February 2016	\$65.80	\$80.65	-20.35%	-0.59%	-1.83%	-2.63%	-17.72%	-4.82
15 March 2016	\$33.51	\$69.04	-72.28%	-0.45%	-1.76%	-2.51%	-69.78%	-18.63

Notes:

The threshold for statistical significance at the 95% confidence level using a two-tailed test is a *t* -statistic of greater (less) than positive (negative) 1.96.

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
1/3/2012	0.12%	2.00%
1/4/2012	0.12%	2.00%
1/5/2012	0.11%	2.00%
1/6/2012	0.12%	2.00%
1/9/2012	0.11%	2.00%
1/10/2012	0.11%	2.00%
1/11/2012	0.11%	2.00%
1/12/2012	0.11%	2.00%
1/13/2012	0.10%	2.00%
1/17/2012	0.11%	2.00%
1/18/2012	0.11%	2.00%
1/19/2012	0.11%	2.00%
1/20/2012	0.11%	2.00%
1/23/2012	0.12%	2.00%
1/24/2012	0.12%	2.00%
1/25/2012	0.12%	2.00%
1/26/2012	0.12%	2.00%
1/27/2012	0.12%	2.00%
1/30/2012	0.12%	2.00%
1/31/2012	0.13%	2.00%
2/1/2012	0.13%	2.00%
2/2/2012	0.14%	2.00%
2/3/2012	0.14%	2.00%
2/6/2012	0.14%	2.00%
2/7/2012	0.14%	2.00%
2/8/2012	0.15%	2.00%
2/9/2012	0.15%	2.00%
2/10/2012	0.15%	2.00%
2/13/2012	0.15%	2.00%
2/14/2012	0.18%	2.00%
2/15/2012	0.18%	2.00%
2/16/2012	0.17%	2.00%
2/17/2012	0.18%	2.00%
2/21/2012	0.17%	2.00%
2/22/2012	0.17%	2.00%
2/23/2012	0.17%	2.00%
2/24/2012	0.18%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
2/27/2012	0.17%	2.00%
2/28/2012	0.18%	2.00%
2/29/2012	0.18%	2.00%
3/1/2012	0.18%	2.00%
3/2/2012	0.17%	2.00%
3/5/2012	0.17%	2.00%
3/6/2012	0.17%	2.00%
3/7/2012	0.18%	2.00%
3/8/2012	0.18%	2.00%
3/9/2012	0.18%	2.00%
3/12/2012	0.18%	2.00%
3/13/2012	0.20%	2.00%
3/14/2012	0.21%	2.00%
3/15/2012	0.21%	2.00%
3/16/2012	0.21%	2.00%
3/19/2012	0.21%	2.00%
3/20/2012	0.22%	2.00%
3/21/2012	0.21%	2.00%
3/22/2012	0.19%	2.00%
3/23/2012	0.19%	2.00%
3/26/2012	0.19%	2.00%
3/27/2012	0.18%	2.00%
3/28/2012	0.18%	2.00%
3/29/2012	0.18%	2.00%
3/30/2012	0.19%	2.00%
4/2/2012	0.18%	2.00%
4/3/2012	0.20%	2.00%
4/4/2012	0.19%	2.00%
4/5/2012	0.19%	2.00%
4/9/2012	0.19%	2.00%
4/10/2012	0.19%	2.00%
4/11/2012	0.18%	2.00%
4/12/2012	0.18%	2.00%
4/13/2012	0.17%	2.00%
4/16/2012	0.18%	2.00%
4/17/2012	0.18%	2.00%
4/18/2012	0.18%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
4/19/2012	0.17%	2.00%
4/20/2012	0.18%	2.00%
4/23/2012	0.17%	2.00%
4/24/2012	0.18%	2.00%
4/25/2012	0.18%	2.00%
4/26/2012	0.18%	2.00%
4/27/2012	0.19%	2.00%
4/30/2012	0.20%	2.00%
5/1/2012	0.19%	2.00%
5/2/2012	0.18%	2.00%
5/3/2012	0.19%	2.00%
5/4/2012	0.18%	2.00%
5/7/2012	0.18%	2.00%
5/8/2012	0.18%	2.00%
5/9/2012	0.18%	2.00%
5/10/2012	0.18%	2.00%
5/11/2012	0.18%	2.00%
5/14/2012	0.19%	2.00%
5/15/2012	0.19%	2.00%
5/16/2012	0.20%	2.00%
5/17/2012	0.20%	2.00%
5/18/2012	0.20%	2.00%
5/21/2012	0.21%	2.00%
5/22/2012	0.21%	2.00%
5/23/2012	0.20%	2.00%
5/24/2012	0.21%	2.00%
5/25/2012	0.20%	2.00%
5/29/2012	0.20%	2.00%
5/30/2012	0.19%	2.00%
5/31/2012	0.18%	2.00%
6/1/2012	0.17%	2.00%
6/4/2012	0.18%	2.00%
6/5/2012	0.18%	2.00%
6/6/2012	0.18%	2.00%
6/7/2012	0.18%	2.00%
6/8/2012	0.19%	2.00%
6/11/2012	0.18%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
6/12/2012	0.19%	2.00%
6/13/2012	0.18%	2.00%
6/14/2012	0.18%	2.00%
6/15/2012	0.18%	2.00%
6/18/2012	0.18%	2.00%
6/19/2012	0.18%	2.00%
6/20/2012	0.20%	2.00%
6/21/2012	0.19%	2.00%
6/22/2012	0.19%	2.00%
6/25/2012	0.19%	2.00%
6/26/2012	0.21%	2.00%
6/27/2012	0.21%	2.00%
6/28/2012	0.22%	2.00%
6/29/2012	0.21%	2.00%
7/2/2012	0.21%	2.00%
7/3/2012	0.21%	2.00%
7/5/2012	0.19%	2.00%
7/6/2012	0.20%	2.00%
7/9/2012	0.20%	2.00%
7/10/2012	0.20%	2.00%
7/11/2012	0.20%	2.00%
7/12/2012	0.20%	2.00%
7/13/2012	0.20%	2.00%
7/16/2012	0.18%	2.00%
7/17/2012	0.18%	2.00%
7/18/2012	0.18%	2.00%
7/19/2012	0.17%	2.00%
7/20/2012	0.17%	2.00%
7/23/2012	0.17%	2.00%
7/24/2012	0.18%	2.00%
7/25/2012	0.17%	2.00%
7/26/2012	0.18%	2.00%
7/27/2012	0.17%	2.00%
7/30/2012	0.18%	2.00%
7/31/2012	0.16%	2.00%
8/1/2012	0.17%	2.00%
8/2/2012	0.17%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
8/3/2012	0.16%	2.00%
8/6/2012	0.16%	2.00%
8/7/2012	0.19%	2.00%
8/8/2012	0.19%	2.00%
8/9/2012	0.20%	2.00%
8/10/2012	0.18%	2.00%
8/13/2012	0.19%	2.00%
8/14/2012	0.19%	2.00%
8/15/2012	0.19%	2.00%
8/16/2012	0.20%	2.00%
8/17/2012	0.20%	2.00%
8/20/2012	0.19%	2.00%
8/21/2012	0.20%	2.00%
8/22/2012	0.19%	2.00%
8/23/2012	0.19%	2.00%
8/24/2012	0.19%	2.00%
8/27/2012	0.18%	2.00%
8/28/2012	0.18%	2.00%
8/29/2012	0.18%	2.00%
8/30/2012	0.17%	2.00%
8/31/2012	0.16%	2.00%
9/4/2012	0.16%	2.00%
9/5/2012	0.17%	2.00%
9/6/2012	0.18%	2.00%
9/7/2012	0.18%	2.00%
9/10/2012	0.18%	2.00%
9/11/2012	0.18%	2.00%
9/12/2012	0.18%	2.00%
9/13/2012	0.17%	2.00%
9/14/2012	0.18%	2.00%
9/17/2012	0.18%	2.00%
9/18/2012	0.18%	2.00%
9/19/2012	0.18%	2.00%
9/20/2012	0.18%	2.00%
9/21/2012	0.18%	2.00%
9/24/2012	0.18%	2.00%
9/25/2012	0.18%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
9/26/2012	0.17%	2.00%
9/27/2012	0.16%	2.00%
9/28/2012	0.17%	2.00%
10/1/2012	0.17%	2.00%
10/2/2012	0.16%	2.00%
10/3/2012	0.16%	2.00%
10/4/2012	0.18%	2.00%
10/5/2012	0.18%	2.00%
10/8/2012	0.18%	2.00%
10/9/2012	0.18%	2.00%
10/10/2012	0.18%	2.00%
10/11/2012	0.18%	2.00%
10/12/2012	0.18%	2.00%
10/15/2012	0.19%	2.00%
10/16/2012	0.18%	2.00%
10/17/2012	0.18%	2.00%
10/18/2012	0.18%	2.00%
10/19/2012	0.18%	2.00%
10/22/2012	0.19%	2.00%
10/23/2012	0.18%	2.00%
10/24/2012	0.18%	2.00%
10/25/2012	0.19%	2.00%
10/26/2012	0.19%	2.00%
10/31/2012	0.18%	2.00%
11/1/2012	0.18%	2.00%
11/2/2012	0.19%	2.00%
11/5/2012	0.19%	2.00%
11/6/2012	0.19%	2.00%
11/7/2012	0.18%	2.00%
11/8/2012	0.20%	2.00%
11/9/2012	0.18%	2.00%
11/12/2012	0.18%	2.00%
11/13/2012	0.18%	2.00%
11/14/2012	0.18%	2.00%
11/15/2012	0.17%	2.00%
11/16/2012	0.16%	2.00%
11/19/2012	0.16%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
11/20/2012	0.16%	2.00%
11/21/2012	0.17%	2.00%
11/23/2012	0.19%	2.00%
11/26/2012	0.17%	2.00%
11/27/2012	0.18%	2.00%
11/28/2012	0.18%	2.00%
11/29/2012	0.18%	2.00%
11/30/2012	0.18%	2.00%
12/3/2012	0.18%	2.00%
12/4/2012	0.18%	2.00%
12/5/2012	0.18%	2.00%
12/6/2012	0.18%	2.00%
12/7/2012	0.18%	2.00%
12/10/2012	0.18%	2.00%
12/11/2012	0.16%	2.00%
12/12/2012	0.14%	2.00%
12/13/2012	0.14%	2.00%
12/14/2012	0.13%	2.00%
12/17/2012	0.13%	2.00%
12/18/2012	0.16%	2.00%
12/19/2012	0.15%	2.00%
12/20/2012	0.15%	2.00%
12/21/2012	0.15%	2.00%
12/24/2012	0.16%	2.00%
12/26/2012	0.16%	2.00%
12/27/2012	0.15%	2.00%
12/28/2012	0.15%	2.00%
12/31/2012	0.16%	2.00%
1/2/2013	0.15%	2.00%
1/3/2013	0.15%	2.00%
1/4/2013	0.15%	2.00%
1/7/2013	0.15%	2.00%
1/8/2013	0.14%	2.00%
1/9/2013	0.13%	2.00%
1/10/2013	0.14%	2.00%
1/11/2013	0.14%	2.00%
1/14/2013	0.14%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
1/15/2013	0.14%	2.00%
1/16/2013	0.14%	2.00%
1/17/2013	0.14%	2.00%
1/18/2013	0.14%	2.00%
1/22/2013	0.14%	2.00%
1/23/2013	0.15%	2.00%
1/24/2013	0.15%	2.00%
1/25/2013	0.15%	2.00%
1/28/2013	0.16%	2.00%
1/29/2013	0.15%	2.00%
1/30/2013	0.15%	2.00%
1/31/2013	0.15%	2.00%
2/1/2013	0.15%	2.00%
2/4/2013	0.15%	2.00%
2/5/2013	0.15%	2.00%
2/6/2013	0.15%	2.00%
2/7/2013	0.15%	2.00%
2/8/2013	0.14%	2.00%
2/11/2013	0.15%	2.00%
2/12/2013	0.14%	2.00%
2/13/2013	0.15%	2.00%
2/14/2013	0.16%	2.00%
2/15/2013	0.17%	2.00%
2/19/2013	0.17%	2.00%
2/20/2013	0.17%	2.00%
2/21/2013	0.16%	2.00%
2/22/2013	0.16%	2.00%
2/25/2013	0.16%	2.00%
2/26/2013	0.17%	2.00%
2/27/2013	0.17%	2.00%
2/28/2013	0.17%	2.00%
3/1/2013	0.16%	2.00%
3/4/2013	0.16%	2.00%
3/5/2013	0.15%	2.00%
3/6/2013	0.15%	2.00%
3/7/2013	0.15%	2.00%
3/8/2013	0.15%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
3/11/2013	0.15%	2.00%
3/12/2013	0.15%	2.00%
3/13/2013	0.15%	2.00%
3/14/2013	0.15%	2.00%
3/15/2013	0.14%	2.00%
3/18/2013	0.15%	2.00%
3/19/2013	0.15%	2.00%
3/20/2013	0.15%	2.00%
3/21/2013	0.14%	2.00%
3/22/2013	0.14%	2.00%
3/25/2013	0.14%	2.00%
3/26/2013	0.14%	2.00%
3/27/2013	0.14%	2.00%
3/28/2013	0.14%	2.00%
4/1/2013	0.14%	2.00%
4/2/2013	0.14%	2.00%
4/3/2013	0.13%	2.00%
4/4/2013	0.13%	2.00%
4/5/2013	0.13%	2.00%
4/8/2013	0.13%	2.00%
4/9/2013	0.13%	2.00%
4/10/2013	0.12%	2.00%
4/11/2013	0.12%	2.00%
4/12/2013	0.11%	2.00%
4/15/2013	0.12%	2.00%
4/16/2013	0.13%	2.00%
4/17/2013	0.13%	2.00%
4/18/2013	0.12%	2.00%
4/19/2013	0.12%	2.00%
4/22/2013	0.12%	2.00%
4/23/2013	0.12%	2.00%
4/24/2013	0.13%	2.00%
4/25/2013	0.12%	2.00%
4/26/2013	0.12%	2.00%
4/29/2013	0.12%	2.00%
4/30/2013	0.11%	2.00%
5/1/2013	0.11%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
5/2/2013	0.11%	2.00%
5/3/2013	0.11%	2.00%
5/6/2013	0.11%	2.00%
5/7/2013	0.10%	2.00%
5/8/2013	0.11%	2.00%
5/9/2013	0.11%	2.00%
5/10/2013	0.11%	2.00%
5/13/2013	0.13%	2.00%
5/14/2013	0.12%	2.00%
5/15/2013	0.12%	2.00%
5/16/2013	0.12%	2.00%
5/17/2013	0.12%	2.00%
5/20/2013	0.12%	2.00%
5/21/2013	0.12%	2.00%
5/22/2013	0.11%	2.00%
5/23/2013	0.12%	2.00%
5/24/2013	0.12%	2.00%
5/28/2013	0.13%	2.00%
5/29/2013	0.14%	2.00%
5/30/2013	0.13%	2.00%
5/31/2013	0.14%	2.00%
6/3/2013	0.14%	2.00%
6/4/2013	0.14%	2.00%
6/5/2013	0.14%	2.00%
6/6/2013	0.14%	2.00%
6/7/2013	0.14%	2.00%
6/10/2013	0.14%	2.00%
6/11/2013	0.14%	2.00%
6/12/2013	0.14%	2.00%
6/13/2013	0.14%	2.00%
6/14/2013	0.13%	2.00%
6/17/2013	0.13%	2.00%
6/18/2013	0.13%	2.00%
6/19/2013	0.13%	2.00%
6/20/2013	0.14%	2.00%
6/21/2013	0.13%	2.00%
6/24/2013	0.16%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
6/25/2013	0.17%	2.00%
6/26/2013	0.16%	2.00%
6/27/2013	0.15%	2.00%
6/28/2013	0.15%	2.00%
7/1/2013	0.15%	2.00%
7/2/2013	0.14%	2.00%
7/3/2013	0.14%	2.00%
7/5/2013	0.15%	2.00%
7/8/2013	0.14%	2.00%
7/9/2013	0.14%	2.00%
7/10/2013	0.13%	2.00%
7/11/2013	0.13%	2.00%
7/12/2013	0.12%	2.00%
7/15/2013	0.11%	2.00%
7/16/2013	0.10%	2.00%
7/17/2013	0.11%	2.00%
7/18/2013	0.11%	2.00%
7/19/2013	0.11%	2.00%
7/22/2013	0.10%	2.00%
7/23/2013	0.12%	2.00%
7/24/2013	0.12%	2.00%
7/25/2013	0.12%	2.00%
7/26/2013	0.11%	2.00%
7/29/2013	0.11%	2.00%
7/30/2013	0.11%	2.00%
7/31/2013	0.11%	2.00%
8/1/2013	0.13%	2.00%
8/2/2013	0.11%	2.00%
8/5/2013	0.12%	2.00%
8/6/2013	0.12%	2.00%
8/7/2013	0.12%	2.00%
8/8/2013	0.12%	2.00%
8/9/2013	0.11%	2.00%
8/12/2013	0.12%	2.00%
8/13/2013	0.12%	2.00%
8/14/2013	0.12%	2.00%
8/15/2013	0.13%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
8/16/2013	0.13%	2.00%
8/19/2013	0.13%	2.00%
8/20/2013	0.13%	2.00%
8/21/2013	0.14%	2.00%
8/22/2013	0.14%	2.00%
8/23/2013	0.14%	2.00%
8/26/2013	0.13%	2.00%
8/27/2013	0.12%	2.00%
8/28/2013	0.14%	2.00%
8/29/2013	0.14%	2.00%
8/30/2013	0.13%	2.00%
9/3/2013	0.14%	2.00%
9/4/2013	0.14%	2.00%
9/5/2013	0.16%	2.00%
9/6/2013	0.14%	2.00%
9/9/2013	0.12%	2.00%
9/10/2013	0.13%	2.00%
9/11/2013	0.12%	2.00%
9/12/2013	0.13%	2.00%
9/13/2013	0.13%	2.00%
9/16/2013	0.13%	2.00%
9/17/2013	0.12%	2.00%
9/18/2013	0.11%	2.00%
9/19/2013	0.10%	2.00%
9/20/2013	0.11%	2.00%
9/23/2013	0.10%	2.00%
9/24/2013	0.10%	2.00%
9/25/2013	0.10%	2.00%
9/26/2013	0.09%	2.00%
9/27/2013	0.10%	2.00%
9/30/2013	0.10%	2.00%
10/1/2013	0.10%	2.00%
10/2/2013	0.11%	2.00%
10/3/2013	0.11%	2.00%
10/4/2013	0.11%	2.00%
10/7/2013	0.12%	2.00%
10/8/2013	0.15%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
10/9/2013	0.15%	2.00%
10/10/2013	0.14%	2.00%
10/11/2013	0.14%	2.00%
10/14/2013	0.14%	2.00%
10/15/2013	0.16%	2.00%
10/16/2013	0.15%	2.00%
10/17/2013	0.13%	2.00%
10/18/2013	0.12%	2.00%
10/21/2013	0.11%	2.00%
10/22/2013	0.10%	2.00%
10/23/2013	0.11%	2.00%
10/24/2013	0.12%	2.00%
10/25/2013	0.11%	2.00%
10/28/2013	0.11%	2.00%
10/29/2013	0.11%	2.00%
10/30/2013	0.11%	2.00%
10/31/2013	0.10%	2.00%
11/1/2013	0.10%	2.00%
11/4/2013	0.09%	2.00%
11/5/2013	0.10%	2.00%
11/6/2013	0.11%	2.00%
11/7/2013	0.11%	2.00%
11/8/2013	0.12%	2.00%
11/11/2013	0.12%	2.00%
11/12/2013	0.13%	2.00%
11/13/2013	0.13%	2.00%
11/14/2013	0.13%	2.00%
11/15/2013	0.13%	2.00%
11/18/2013	0.13%	2.00%
11/19/2013	0.14%	2.00%
11/20/2013	0.12%	2.00%
11/21/2013	0.12%	2.00%
11/22/2013	0.12%	2.00%
11/25/2013	0.14%	2.00%
11/26/2013	0.13%	2.00%
11/27/2013	0.13%	2.00%
11/29/2013	0.13%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
12/2/2013	0.13%	2.00%
12/3/2013	0.13%	2.00%
12/4/2013	0.14%	2.00%
12/5/2013	0.13%	2.00%
12/6/2013	0.13%	2.00%
12/9/2013	0.13%	2.00%
12/10/2013	0.14%	2.00%
12/11/2013	0.13%	2.00%
12/12/2013	0.14%	2.00%
12/13/2013	0.14%	2.00%
12/16/2013	0.13%	2.00%
12/17/2013	0.14%	2.00%
12/18/2013	0.13%	2.00%
12/19/2013	0.13%	2.00%
12/20/2013	0.13%	2.00%
12/23/2013	0.14%	2.00%
12/24/2013	0.14%	2.00%
12/26/2013	0.13%	2.00%
12/27/2013	0.12%	2.00%
12/30/2013	0.13%	2.00%
12/31/2013	0.13%	2.00%
1/2/2014	0.13%	2.00%
1/3/2014	0.13%	2.00%
1/6/2014	0.12%	2.00%
1/7/2014	0.13%	2.00%
1/8/2014	0.13%	2.00%
1/9/2014	0.13%	2.00%
1/10/2014	0.12%	2.00%
1/13/2014	0.11%	2.00%
1/14/2014	0.11%	2.00%
1/15/2014	0.13%	2.00%
1/16/2014	0.11%	2.00%
1/17/2014	0.11%	2.00%
1/21/2014	0.12%	2.00%
1/22/2014	0.11%	2.00%
1/23/2014	0.11%	2.00%
1/24/2014	0.11%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
1/27/2014	0.11%	2.00%
1/28/2014	0.11%	2.00%
1/29/2014	0.11%	2.00%
1/30/2014	0.10%	2.00%
1/31/2014	0.10%	2.00%
2/3/2014	0.11%	2.00%
2/4/2014	0.12%	2.00%
2/5/2014	0.12%	2.00%
2/6/2014	0.13%	2.00%
2/7/2014	0.12%	2.00%
2/10/2014	0.12%	2.00%
2/11/2014	0.12%	2.00%
2/12/2014	0.12%	2.00%
2/13/2014	0.12%	2.00%
2/14/2014	0.11%	2.00%
2/18/2014	0.12%	2.00%
2/19/2014	0.11%	2.00%
2/20/2014	0.12%	2.00%
2/21/2014	0.12%	2.00%
2/24/2014	0.11%	2.00%
2/25/2014	0.11%	2.00%
2/26/2014	0.11%	2.00%
2/27/2014	0.11%	2.00%
2/28/2014	0.12%	2.00%
3/3/2014	0.12%	2.00%
3/4/2014	0.12%	2.00%
3/5/2014	0.13%	2.00%
3/6/2014	0.12%	2.00%
3/7/2014	0.13%	2.00%
3/10/2014	0.12%	2.00%
3/11/2014	0.13%	2.00%
3/12/2014	0.12%	2.00%
3/13/2014	0.12%	2.00%
3/14/2014	0.12%	2.00%
3/17/2014	0.13%	2.00%
3/18/2014	0.13%	2.00%
3/19/2014	0.15%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
3/20/2014	0.14%	2.00%
3/21/2014	0.14%	2.00%
3/24/2014	0.14%	2.00%
3/25/2014	0.13%	2.00%
3/26/2014	0.12%	2.00%
3/27/2014	0.12%	2.00%
3/28/2014	0.13%	2.00%
3/31/2014	0.13%	2.00%
4/1/2014	0.13%	2.00%
4/2/2014	0.12%	2.00%
4/3/2014	0.11%	2.00%
4/4/2014	0.11%	2.00%
4/7/2014	0.11%	2.00%
4/8/2014	0.11%	2.00%
4/9/2014	0.10%	2.00%
4/10/2014	0.09%	2.00%
4/11/2014	0.09%	2.00%
4/14/2014	0.10%	2.00%
4/15/2014	0.11%	2.00%
4/16/2014	0.11%	2.00%
4/17/2014	0.11%	2.00%
4/21/2014	0.11%	2.00%
4/22/2014	0.11%	2.00%
4/23/2014	0.11%	2.00%
4/24/2014	0.10%	2.00%
4/25/2014	0.11%	2.00%
4/28/2014	0.10%	2.00%
4/29/2014	0.11%	2.00%
4/30/2014	0.11%	2.00%
5/1/2014	0.10%	2.00%
5/2/2014	0.10%	2.00%
5/5/2014	0.11%	2.00%
5/6/2014	0.10%	2.00%
5/7/2014	0.10%	2.00%
5/8/2014	0.10%	2.00%
5/9/2014	0.10%	2.00%
5/12/2014	0.09%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
5/13/2014	0.10%	2.00%
5/14/2014	0.10%	2.00%
5/15/2014	0.09%	2.00%
5/16/2014	0.09%	2.00%
5/19/2014	0.09%	2.00%
5/20/2014	0.09%	2.00%
5/21/2014	0.09%	2.00%
5/22/2014	0.09%	2.00%
5/23/2014	0.10%	2.00%
5/27/2014	0.09%	2.00%
5/28/2014	0.10%	2.00%
5/29/2014	0.10%	2.00%
5/30/2014	0.10%	2.00%
6/2/2014	0.10%	2.00%
6/3/2014	0.10%	2.00%
6/4/2014	0.10%	2.00%
6/5/2014	0.10%	2.00%
6/6/2014	0.11%	2.00%
6/9/2014	0.11%	2.00%
6/10/2014	0.11%	2.00%
6/11/2014	0.11%	2.00%
6/12/2014	0.10%	2.00%
6/13/2014	0.11%	2.00%
6/16/2014	0.11%	2.00%
6/17/2014	0.11%	2.00%
6/18/2014	0.10%	2.00%
6/19/2014	0.09%	2.00%
6/20/2014	0.09%	2.00%
6/23/2014	0.10%	2.00%
6/24/2014	0.12%	2.00%
6/25/2014	0.11%	2.00%
6/26/2014	0.11%	2.00%
6/27/2014	0.10%	2.00%
6/30/2014	0.11%	2.00%
7/1/2014	0.11%	2.00%
7/2/2014	0.12%	2.00%
7/3/2014	0.11%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
7/7/2014	0.12%	2.00%
7/8/2014	0.11%	2.00%
7/9/2014	0.11%	2.00%
7/10/2014	0.10%	2.00%
7/11/2014	0.11%	2.00%
7/14/2014	0.11%	2.00%
7/15/2014	0.11%	2.00%
7/16/2014	0.11%	2.00%
7/17/2014	0.10%	2.00%
7/18/2014	0.10%	2.00%
7/21/2014	0.11%	2.00%
7/22/2014	0.11%	2.00%
7/23/2014	0.11%	2.00%
7/24/2014	0.11%	2.00%
7/25/2014	0.11%	2.00%
7/28/2014	0.11%	2.00%
7/29/2014	0.12%	2.00%
7/30/2014	0.13%	2.00%
7/31/2014	0.12%	2.00%
8/1/2014	0.13%	2.00%
8/4/2014	0.12%	2.00%
8/5/2014	0.12%	2.00%
8/6/2014	0.11%	2.00%
8/7/2014	0.11%	2.00%
8/8/2014	0.10%	2.00%
8/11/2014	0.10%	2.00%
8/12/2014	0.10%	2.00%
8/13/2014	0.10%	2.00%
8/14/2014	0.10%	2.00%
8/15/2014	0.09%	2.00%
8/18/2014	0.10%	2.00%
8/19/2014	0.11%	2.00%
8/20/2014	0.12%	2.00%
8/21/2014	0.10%	2.00%
8/22/2014	0.10%	2.00%
8/25/2014	0.11%	2.00%
8/26/2014	0.12%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
8/27/2014	0.11%	2.00%
8/28/2014	0.11%	2.00%
8/29/2014	0.09%	2.00%
9/2/2014	0.10%	2.00%
9/3/2014	0.11%	2.00%
9/4/2014	0.10%	2.00%
9/5/2014	0.10%	2.00%
9/8/2014	0.10%	2.00%
9/9/2014	0.11%	2.00%
9/10/2014	0.11%	2.00%
9/11/2014	0.11%	2.00%
9/12/2014	0.11%	2.00%
9/15/2014	0.11%	2.00%
9/16/2014	0.13%	2.00%
9/17/2014	0.12%	2.00%
9/18/2014	0.12%	2.00%
9/19/2014	0.11%	2.00%
9/22/2014	0.10%	2.00%
9/23/2014	0.10%	2.00%
9/24/2014	0.11%	2.00%
9/25/2014	0.10%	2.00%
9/26/2014	0.11%	2.00%
9/29/2014	0.11%	2.00%
9/30/2014	0.13%	2.00%
10/1/2014	0.10%	2.00%
10/2/2014	0.10%	2.00%
10/3/2014	0.11%	2.00%
10/6/2014	0.11%	2.00%
10/7/2014	0.10%	2.00%
10/8/2014	0.10%	2.00%
10/9/2014	0.10%	2.00%
10/10/2014	0.10%	2.00%
10/13/2014	0.10%	2.00%
10/14/2014	0.09%	2.00%
10/15/2014	0.10%	2.00%
10/16/2014	0.10%	2.00%
10/17/2014	0.11%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
10/20/2014	0.10%	2.00%
10/21/2014	0.10%	2.00%
10/22/2014	0.11%	2.00%
10/23/2014	0.11%	2.00%
10/24/2014	0.11%	2.00%
10/27/2014	0.11%	2.00%
10/28/2014	0.11%	2.00%
10/29/2014	0.11%	2.00%
10/30/2014	0.11%	2.00%
10/31/2014	0.11%	2.00%
11/3/2014	0.12%	2.00%
11/4/2014	0.11%	2.00%
11/5/2014	0.11%	2.00%
11/6/2014	0.12%	2.00%
11/7/2014	0.12%	2.00%
11/10/2014	0.13%	2.00%
11/11/2014	0.13%	2.00%
11/12/2014	0.14%	2.00%
11/13/2014	0.15%	2.00%
11/14/2014	0.15%	2.00%
11/17/2014	0.15%	2.00%
11/18/2014	0.14%	2.00%
11/19/2014	0.15%	2.00%
11/20/2014	0.14%	2.00%
11/21/2014	0.14%	2.00%
11/24/2014	0.14%	2.00%
11/25/2014	0.14%	2.00%
11/26/2014	0.14%	2.00%
11/28/2014	0.13%	2.00%
12/1/2014	0.13%	2.00%
12/2/2014	0.14%	2.00%
12/3/2014	0.15%	2.00%
12/4/2014	0.14%	2.00%
12/5/2014	0.18%	2.00%
12/8/2014	0.18%	2.00%
12/9/2014	0.23%	2.00%
12/10/2014	0.21%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
12/11/2014	0.21%	2.00%
12/12/2014	0.19%	2.00%
12/15/2014	0.22%	2.00%
12/16/2014	0.21%	2.00%
12/17/2014	0.23%	2.00%
12/18/2014	0.25%	2.00%
12/19/2014	0.26%	2.00%
12/22/2014	0.28%	2.00%
12/23/2014	0.26%	2.00%
12/24/2014	0.26%	2.00%
12/26/2014	0.26%	2.00%
12/29/2014	0.25%	2.00%
12/30/2014	0.23%	2.00%
12/31/2014	0.25%	2.00%
1/2/2015	0.25%	2.00%
1/5/2015	0.26%	2.00%
1/6/2015	0.25%	2.00%
1/7/2015	0.25%	2.00%
1/8/2015	0.23%	2.00%
1/9/2015	0.22%	2.00%
1/12/2015	0.19%	2.00%
1/13/2015	0.20%	2.00%
1/14/2015	0.18%	2.00%
1/15/2015	0.16%	2.00%
1/16/2015	0.17%	2.00%
1/20/2015	0.17%	2.00%
1/21/2015	0.17%	2.00%
1/22/2015	0.17%	2.00%
1/23/2015	0.17%	2.00%
1/26/2015	0.18%	2.00%
1/27/2015	0.17%	2.00%
1/28/2015	0.17%	2.00%
1/29/2015	0.17%	2.00%
1/30/2015	0.18%	2.00%
2/2/2015	0.17%	2.00%
2/3/2015	0.21%	2.00%
2/4/2015	0.20%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
2/5/2015	0.20%	2.00%
2/6/2015	0.26%	2.00%
2/9/2015	0.24%	2.00%
2/10/2015	0.25%	2.00%
2/11/2015	0.24%	2.00%
2/12/2015	0.23%	2.00%
2/13/2015	0.23%	2.00%
2/17/2015	0.25%	2.00%
2/18/2015	0.23%	2.00%
2/19/2015	0.23%	2.00%
2/20/2015	0.23%	2.00%
2/23/2015	0.22%	2.00%
2/24/2015	0.22%	2.00%
2/25/2015	0.21%	2.00%
2/26/2015	0.22%	2.00%
2/27/2015	0.22%	2.00%
3/2/2015	0.22%	2.00%
3/3/2015	0.26%	2.00%
3/4/2015	0.26%	2.00%
3/5/2015	0.25%	2.00%
3/6/2015	0.27%	2.00%
3/9/2015	0.27%	2.00%
3/10/2015	0.25%	2.00%
3/11/2015	0.25%	2.00%
3/12/2015	0.24%	2.00%
3/13/2015	0.24%	2.00%
3/16/2015	0.26%	2.00%
3/17/2015	0.27%	2.00%
3/18/2015	0.23%	2.00%
3/19/2015	0.26%	2.00%
3/20/2015	0.24%	2.00%
3/23/2015	0.24%	2.00%
3/24/2015	0.24%	2.00%
3/25/2015	0.25%	2.00%
3/26/2015	0.28%	2.00%
3/27/2015	0.27%	2.00%
3/30/2015	0.27%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
3/31/2015	0.26%	2.00%
4/1/2015	0.27%	2.00%
4/2/2015	0.25%	2.00%
4/6/2015	0.21%	2.00%
4/7/2015	0.22%	2.00%
4/8/2015	0.22%	2.00%
4/9/2015	0.22%	2.00%
4/10/2015	0.24%	2.00%
4/13/2015	0.23%	2.00%
4/14/2015	0.23%	2.00%
4/15/2015	0.23%	2.00%
4/16/2015	0.22%	2.00%
4/17/2015	0.23%	2.00%
4/20/2015	0.24%	2.00%
4/21/2015	0.23%	2.00%
4/22/2015	0.23%	2.00%
4/23/2015	0.24%	2.00%
4/24/2015	0.24%	2.00%
4/27/2015	0.25%	2.00%
4/28/2015	0.24%	2.00%
4/29/2015	0.25%	2.00%
4/30/2015	0.24%	2.00%
5/1/2015	0.25%	2.00%
5/4/2015	0.25%	2.00%
5/5/2015	0.24%	2.00%
5/6/2015	0.25%	2.00%
5/7/2015	0.24%	2.00%
5/8/2015	0.23%	2.00%
5/11/2015	0.25%	2.00%
5/12/2015	0.25%	2.00%
5/13/2015	0.24%	2.00%
5/14/2015	0.23%	2.00%
5/15/2015	0.23%	2.00%
5/18/2015	0.22%	2.00%
5/19/2015	0.23%	2.00%
5/20/2015	0.23%	2.00%
5/21/2015	0.22%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
5/22/2015	0.23%	2.00%
5/26/2015	0.24%	2.00%
5/27/2015	0.27%	2.00%
5/28/2015	0.26%	2.00%
5/29/2015	0.26%	2.00%
6/1/2015	0.26%	2.00%
6/2/2015	0.26%	2.00%
6/3/2015	0.26%	2.00%
6/4/2015	0.27%	2.00%
6/5/2015	0.29%	2.00%
6/8/2015	0.27%	2.00%
6/9/2015	0.27%	2.00%
6/10/2015	0.28%	2.00%
6/11/2015	0.28%	2.00%
6/12/2015	0.28%	2.00%
6/15/2015	0.28%	2.00%
6/16/2015	0.28%	2.00%
6/17/2015	0.27%	2.00%
6/18/2015	0.26%	2.00%
6/19/2015	0.25%	2.00%
6/22/2015	0.27%	2.00%
6/23/2015	0.30%	2.00%
6/24/2015	0.30%	2.00%
6/25/2015	0.29%	2.00%
6/26/2015	0.29%	2.00%
6/29/2015	0.27%	2.00%
6/30/2015	0.28%	2.00%
7/1/2015	0.28%	2.00%
7/2/2015	0.26%	2.00%
7/6/2015	0.26%	2.00%
7/7/2015	0.25%	2.00%
7/8/2015	0.24%	2.00%
7/9/2015	0.25%	2.00%
7/10/2015	0.28%	2.00%
7/13/2015	0.28%	2.00%
7/14/2015	0.27%	2.00%
7/15/2015	0.28%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
7/16/2015	0.29%	2.00%
7/17/2015	0.29%	2.00%
7/20/2015	0.31%	2.00%
7/21/2015	0.34%	2.00%
7/22/2015	0.34%	2.00%
7/23/2015	0.33%	2.00%
7/24/2015	0.32%	2.00%
7/27/2015	0.32%	2.00%
7/28/2015	0.32%	2.00%
7/29/2015	0.33%	2.00%
7/30/2015	0.36%	2.00%
7/31/2015	0.33%	2.00%
8/3/2015	0.33%	2.00%
8/4/2015	0.37%	2.00%
8/5/2015	0.38%	2.00%
8/6/2015	0.35%	2.00%
8/7/2015	0.38%	2.00%
8/10/2015	0.40%	2.00%
8/11/2015	0.37%	2.00%
8/12/2015	0.37%	2.00%
8/13/2015	0.40%	2.00%
8/14/2015	0.41%	2.00%
8/17/2015	0.40%	2.00%
8/18/2015	0.42%	2.00%
8/19/2015	0.39%	2.00%
8/20/2015	0.39%	2.00%
8/21/2015	0.36%	2.00%
8/24/2015	0.33%	2.00%
8/25/2015	0.36%	2.00%
8/26/2015	0.35%	2.00%
8/27/2015	0.36%	2.00%
8/28/2015	0.38%	2.00%
8/31/2015	0.39%	2.00%
9/1/2015	0.39%	2.00%
9/2/2015	0.37%	2.00%
9/3/2015	0.36%	2.00%
9/4/2015	0.36%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
9/8/2015	0.39%	2.00%
9/9/2015	0.39%	2.00%
9/10/2015	0.39%	2.00%
9/11/2015	0.40%	2.00%
9/14/2015	0.40%	2.00%
9/15/2015	0.47%	2.00%
9/16/2015	0.46%	2.00%
9/17/2015	0.39%	2.00%
9/18/2015	0.35%	2.00%
9/21/2015	0.36%	2.00%
9/22/2015	0.35%	2.00%
9/23/2015	0.34%	2.00%
9/24/2015	0.32%	2.00%
9/25/2015	0.35%	2.00%
9/28/2015	0.34%	2.00%
9/29/2015	0.33%	2.00%
9/30/2015	0.33%	2.00%
10/1/2015	0.31%	2.00%
10/2/2015	0.25%	2.00%
10/5/2015	0.26%	2.00%
10/6/2015	0.26%	2.00%
10/7/2015	0.27%	2.00%
10/8/2015	0.27%	2.00%
10/9/2015	0.28%	2.00%
10/12/2015	0.28%	2.00%
10/13/2015	0.27%	2.00%
10/14/2015	0.21%	2.00%
10/15/2015	0.22%	2.00%
10/16/2015	0.23%	2.00%
10/19/2015	0.23%	2.00%
10/20/2015	0.23%	2.00%
10/21/2015	0.23%	2.00%
10/22/2015	0.23%	2.00%
10/23/2015	0.24%	2.00%
10/26/2015	0.25%	2.00%
10/27/2015	0.29%	2.00%
10/28/2015	0.33%	2.00%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
10/29/2015	0.33%	2.00%
10/30/2015	0.34%	2.00%
11/2/2015	0.37%	2.00%
11/3/2015	0.39%	2.00%
11/4/2015	0.40%	2.00%
11/5/2015	0.42%	2.00%
11/6/2015	0.47%	2.00%
11/9/2015	0.47%	2.00%
11/10/2015	0.51%	2.00%
11/11/2015	0.51%	2.00%
11/12/2015	0.51%	2.00%
11/13/2015	0.50%	2.00%
11/16/2015	0.50%	2.00%
11/17/2015	0.50%	2.00%
11/18/2015	0.49%	2.00%
11/19/2015	0.49%	2.00%
11/20/2015	0.49%	2.00%
11/23/2015	0.50%	2.00%
11/24/2015	0.52%	2.00%
11/25/2015	0.52%	2.00%
11/27/2015	0.50%	2.00%
11/30/2015	0.51%	2.00%
12/1/2015	0.51%	2.00%
12/2/2015	0.52%	2.00%
12/3/2015	0.57%	2.00%
12/4/2015	0.60%	2.00%
12/7/2015	0.67%	2.00%
12/8/2015	0.76%	2.00%
12/9/2015	0.72%	2.00%
12/10/2015	0.71%	2.00%
12/11/2015	0.68%	2.00%
12/14/2015	0.68%	2.00%
12/15/2015	0.69%	2.00%
12/16/2015	0.70%	2.25%
12/17/2015	0.69%	2.25%
12/18/2015	0.67%	2.25%
12/21/2015	0.64%	2.25%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
12/22/2015	0.66%	2.25%
12/23/2015	0.65%	2.25%
12/24/2015	0.64%	2.25%
12/28/2015	0.66%	2.25%
12/29/2015	0.67%	2.25%
12/30/2015	0.64%	2.25%
12/31/2015	0.65%	2.25%
1/4/2016	0.61%	2.25%
1/5/2016	0.68%	2.25%
1/6/2016	0.67%	2.25%
1/7/2016	0.66%	2.25%
1/8/2016	0.64%	2.25%
1/11/2016	0.63%	2.25%
1/12/2016	0.62%	2.25%
1/13/2016	0.60%	2.25%
1/14/2016	0.55%	2.25%
1/15/2016	0.49%	2.25%
1/19/2016	0.48%	2.25%
1/20/2016	0.43%	2.25%
1/21/2016	0.44%	2.25%
1/22/2016	0.47%	2.25%
1/25/2016	0.47%	2.25%
1/26/2016	0.47%	2.25%
1/27/2016	0.47%	2.25%
1/28/2016	0.47%	2.25%
1/29/2016	0.47%	2.25%
2/1/2016	0.47%	2.25%
2/2/2016	0.54%	2.25%
2/3/2016	0.54%	2.25%
2/4/2016	0.52%	2.25%
2/5/2016	0.55%	2.25%
2/8/2016	0.51%	2.25%
2/9/2016	0.52%	2.25%
2/10/2016	0.52%	2.25%
2/11/2016	0.47%	2.25%
2/12/2016	0.51%	2.25%
2/16/2016	0.51%	2.25%

Exhibit-8

Interest Rates

3 January 2012 through 15 March 2016

Date	1-Year Treasury Rate	Broker-Dealer Index Rate
2/17/2016	0.53%	2.25%
2/18/2016	0.53%	2.25%
2/19/2016	0.53%	2.25%
2/22/2016	0.55%	2.25%
2/23/2016	0.55%	2.25%
2/24/2016	0.55%	2.25%
2/25/2016	0.56%	2.25%
2/26/2016	0.60%	2.25%
2/29/2016	0.62%	2.25%
3/1/2016	0.68%	2.25%
3/2/2016	0.67%	2.25%
3/3/2016	0.65%	2.25%
3/4/2016	0.67%	2.25%
3/7/2016	0.67%	2.25%
3/8/2016	0.68%	2.25%
3/9/2016	0.68%	2.25%
3/10/2016	0.69%	2.25%
3/11/2016	0.70%	2.25%
3/14/2016	0.70%	2.25%
3/15/2016	0.71%	2.25%

Sources: Federal Reserve Economic Data and
Bloomberg.

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Stock Price	Synthetic Stock Logarithmic Return
1/3/2012	\$46.34	\$49.31	\$47.82	
1/4/2012	\$45.20	\$48.59	\$46.90	-1.96%
1/5/2012	\$45.33	\$48.46	\$46.89	-0.01%
1/6/2012	\$46.34	\$47.97	\$47.16	0.56%
1/9/2012	\$47.10	\$49.70	\$48.40	2.60%
1/10/2012	\$48.68	\$51.06	\$49.87	2.99%
1/11/2012	\$47.64	\$50.18	\$48.91	-1.94%
1/12/2012	\$47.70	\$50.20	\$48.95	0.08%
1/13/2012	\$47.53	\$50.26	\$48.90	-0.11%
1/17/2012	\$49.54	\$51.58	\$50.56	3.35%
1/18/2012	\$49.64	\$52.18	\$50.91	0.69%
1/19/2012	\$49.77	\$52.40	\$51.08	0.34%
1/20/2012	\$49.77	\$52.02	\$50.89	-0.38%
1/23/2012	\$49.36	\$51.79	\$50.58	-0.63%
1/24/2012	\$48.44	\$50.98	\$49.71	-1.73%
1/25/2012	\$48.84	\$51.51	\$50.18	0.94%
1/26/2012	\$47.75	\$50.90	\$49.33	-1.70%
1/27/2012	\$47.79	\$50.12	\$48.95	-0.76%
1/30/2012	\$47.14	\$49.94	\$48.54	-0.86%
1/31/2012	\$46.91	\$49.77	\$48.34	-0.41%
2/1/2012	\$48.53	\$51.64	\$50.08	3.54%
2/2/2012	\$48.73	\$51.23	\$49.98	-0.20%
2/3/2012	\$49.24	\$51.94	\$50.59	1.22%
2/6/2012	\$48.88	\$51.43	\$50.15	-0.87%
2/7/2012	\$48.76	\$50.98	\$49.87	-0.57%
2/8/2012	\$48.52	\$50.63	\$49.57	-0.60%
2/9/2012	\$47.25	\$49.93	\$48.59	-2.00%
2/10/2012	\$46.61	\$48.97	\$47.79	-1.66%
2/13/2012	\$47.05	\$49.27	\$48.16	0.78%
2/14/2012	\$47.29	\$49.63	\$48.46	0.62%
2/15/2012	\$46.90	\$49.57	\$48.24	-0.46%
2/16/2012	\$46.78	\$49.00	\$47.89	-0.72%
2/17/2012	\$46.42	\$48.67	\$47.55	-0.72%
2/21/2012	\$45.02	\$47.42	\$46.22	-2.83%
2/22/2012	\$45.11	\$47.28	\$46.19	-0.06%
2/23/2012	\$45.73	\$48.29	\$47.01	1.75%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
2/24/2012	\$46.85	\$48.76	\$47.80	1.67%
2/27/2012	\$49.15	\$51.41	\$50.28	5.04%
2/28/2012	\$49.82	\$51.96	\$50.89	1.22%
2/29/2012	\$51.55	\$53.86	\$52.71	3.50%
3/1/2012	\$52.43	\$54.95	\$53.69	1.85%
3/2/2012	\$52.87	\$54.67	\$53.77	0.15%
3/5/2012	\$52.38	\$55.30	\$53.84	0.13%
3/6/2012	\$52.38	\$55.01	\$53.69	-0.28%
3/7/2012	\$52.80	\$55.41	\$54.10	0.76%
3/8/2012	\$54.01	\$55.99	\$55.00	1.65%
3/9/2012	\$54.31	\$56.47	\$55.39	0.70%
3/12/2012	\$53.42	\$55.58	\$54.50	-1.61%
3/13/2012	\$53.01	\$55.41	\$54.21	-0.55%
3/14/2012	\$52.58	\$54.73	\$53.66	-1.02%
3/15/2012	\$53.27	\$55.46	\$54.36	1.31%
3/16/2012	\$52.50	\$54.78	\$53.64	-1.34%
3/19/2012	\$52.56	\$54.76	\$53.66	0.04%
3/20/2012	\$52.00	\$54.05	\$53.03	-1.20%
3/21/2012	\$52.34	\$54.62	\$53.48	0.85%
3/22/2012	\$51.75	\$53.75	\$52.75	-1.37%
3/23/2012	\$52.27	\$54.49	\$53.38	1.18%
3/26/2012	\$53.33	\$55.48	\$54.40	1.91%
3/27/2012	\$53.15	\$55.13	\$54.14	-0.49%
3/28/2012	\$52.41	\$54.44	\$53.42	-1.33%
3/29/2012	\$52.47	\$54.53	\$53.50	0.15%
3/30/2012	\$52.67	\$54.76	\$53.72	0.40%
4/2/2012	\$53.38	\$55.51	\$54.44	1.34%
4/3/2012	\$53.24	\$55.45	\$54.35	-0.18%
4/4/2012	\$52.93	\$54.96	\$53.94	-0.74%
4/5/2012	\$53.53	\$55.39	\$54.46	0.95%
4/9/2012	\$52.98	\$54.67	\$53.83	-1.17%
4/10/2012	\$51.90	\$53.86	\$52.88	-1.78%
4/11/2012	\$51.24	\$53.96	\$52.60	-0.53%
4/12/2012	\$51.83	\$54.54	\$53.18	1.10%
4/13/2012	\$51.16	\$54.41	\$52.78	-0.76%
4/16/2012	\$51.74	\$54.91	\$53.33	1.03%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
4/17/2012	\$52.62	\$55.91	\$54.27	1.75%
4/18/2012	\$53.23	\$56.26	\$54.75	0.88%
4/19/2012	\$53.25	\$56.64	\$54.95	0.36%
4/20/2012	\$53.92	\$56.52	\$55.22	0.49%
4/23/2012	\$53.12	\$55.89	\$54.51	-1.30%
4/24/2012	\$53.49	\$56.84	\$55.16	1.20%
4/25/2012	\$54.12	\$57.54	\$55.83	1.20%
4/26/2012	\$54.11	\$57.25	\$55.68	-0.27%
4/27/2012	\$54.25	\$57.37	\$55.81	0.23%
4/30/2012	\$54.02	\$57.17	\$55.59	-0.38%
5/1/2012	\$54.33	\$57.45	\$55.89	0.54%
5/2/2012	\$54.30	\$57.73	\$56.02	0.22%
5/3/2012	\$49.43	\$52.65	\$51.04	-9.31%
5/4/2012	\$49.32	\$52.49	\$50.91	-0.26%
5/7/2012	\$50.51	\$53.55	\$52.03	2.18%
5/8/2012	\$50.43	\$52.86	\$51.65	-0.74%
5/9/2012	\$50.60	\$53.83	\$52.22	1.10%
5/10/2012	\$51.12	\$54.15	\$52.63	0.79%
5/11/2012	\$51.44	\$54.75	\$53.10	0.88%
5/14/2012	\$49.86	\$52.37	\$51.11	-3.81%
5/15/2012	\$48.52	\$51.41	\$49.97	-2.27%
5/16/2012	\$47.73	\$50.72	\$49.22	-1.50%
5/17/2012	\$46.85	\$49.75	\$48.30	-1.90%
5/18/2012	\$45.94	\$48.70	\$47.32	-2.05%
5/21/2012	\$45.66	\$48.56	\$47.11	-0.44%
5/22/2012	\$45.92	\$48.78	\$47.35	0.50%
5/23/2012	\$45.09	\$47.74	\$46.42	-2.00%
5/24/2012	\$46.09	\$48.58	\$47.33	1.96%
5/25/2012	\$46.90	\$49.65	\$48.28	1.98%
5/29/2012	\$46.81	\$49.76	\$48.29	0.02%
5/30/2012	\$46.11	\$49.07	\$47.59	-1.45%
5/31/2012	\$47.00	\$49.55	\$48.28	1.43%
6/1/2012	\$45.46	\$48.37	\$46.92	-2.87%
6/4/2012	\$44.97	\$47.82	\$46.39	-1.12%
6/5/2012	\$45.68	\$48.59	\$47.14	1.59%
6/6/2012	\$46.54	\$49.46	\$48.00	1.82%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
6/7/2012	\$47.43	\$49.49	\$48.46	0.95%
6/8/2012	\$46.63	\$49.49	\$48.06	-0.83%
6/11/2012	\$45.43	\$48.32	\$46.88	-2.49%
6/12/2012	\$44.01	\$47.03	\$45.52	-2.94%
6/13/2012	\$43.74	\$46.35	\$45.05	-1.04%
6/14/2012	\$44.02	\$46.95	\$45.48	0.96%
6/15/2012	\$43.59	\$46.92	\$45.25	-0.50%
6/18/2012	\$44.54	\$47.45	\$46.00	1.63%
6/19/2012	\$45.94	\$48.78	\$47.36	2.91%
6/20/2012	\$46.64	\$49.62	\$48.13	1.62%
6/21/2012	\$44.08	\$47.17	\$45.62	-5.34%
6/22/2012	\$45.09	\$47.78	\$46.43	1.76%
6/25/2012	\$44.36	\$47.21	\$45.78	-1.41%
6/26/2012	\$44.14	\$47.09	\$45.62	-0.36%
6/27/2012	\$44.00	\$46.73	\$45.36	-0.56%
6/28/2012	\$42.01	\$44.86	\$43.44	-4.34%
6/29/2012	\$43.55	\$45.94	\$44.75	2.97%
7/2/2012	\$43.53	\$46.04	\$44.79	0.09%
7/3/2012	\$45.39	\$48.13	\$46.76	4.31%
7/5/2012	\$45.53	\$48.09	\$46.81	0.11%
7/6/2012	\$44.84	\$47.45	\$46.15	-1.43%
7/9/2012	\$44.94	\$47.16	\$46.05	-0.21%
7/10/2012	\$43.84	\$46.62	\$45.23	-1.79%
7/11/2012	\$43.43	\$46.23	\$44.83	-0.89%
7/12/2012	\$43.41	\$45.88	\$44.64	-0.43%
7/13/2012	\$43.65	\$46.50	\$45.07	0.96%
7/16/2012	\$43.65	\$46.45	\$45.05	-0.05%
7/17/2012	\$44.88	\$47.74	\$46.31	2.76%
7/18/2012	\$46.07	\$49.10	\$47.59	2.71%
7/19/2012	\$46.45	\$49.41	\$47.93	0.73%
7/20/2012	\$46.26	\$48.54	\$47.40	-1.13%
7/23/2012	\$44.50	\$47.07	\$45.79	-3.45%
7/24/2012	\$44.78	\$47.47	\$46.13	0.74%
7/25/2012	\$45.19	\$48.03	\$46.61	1.05%
7/26/2012	\$45.89	\$48.85	\$47.37	1.61%
7/27/2012	\$47.00	\$50.37	\$48.68	2.74%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
7/30/2012	\$47.39	\$50.12	\$48.75	0.14%
7/31/2012	\$46.19	\$49.29	\$47.74	-2.10%
8/1/2012	\$45.24	\$48.58	\$46.91	-1.76%
8/2/2012	\$45.53	\$48.49	\$47.01	0.22%
8/3/2012	\$46.52	\$49.65	\$48.08	2.25%
8/6/2012	\$46.93	\$49.31	\$48.12	0.08%
8/7/2012	\$48.35	\$51.19	\$49.77	3.37%
8/8/2012	\$48.47	\$51.04	\$49.75	-0.03%
8/9/2012	\$48.63	\$51.15	\$49.89	0.26%
8/10/2012	\$48.67	\$51.11	\$49.89	0.00%
8/13/2012	\$48.68	\$51.15	\$49.92	0.06%
8/14/2012	\$49.29	\$51.89	\$50.59	1.34%
8/15/2012	\$49.32	\$52.20	\$50.76	0.33%
8/16/2012	\$49.23	\$51.83	\$50.53	-0.46%
8/17/2012	\$49.73	\$52.53	\$51.13	1.18%
8/20/2012	\$50.85	\$53.46	\$52.15	1.98%
8/21/2012	\$51.15	\$53.73	\$52.44	0.55%
8/22/2012	\$50.49	\$53.19	\$51.84	-1.15%
8/23/2012	\$50.09	\$52.73	\$51.41	-0.83%
8/24/2012	\$50.66	\$52.96	\$51.81	0.76%
8/27/2012	\$50.58	\$52.81	\$51.69	-0.22%
8/28/2012	\$50.30	\$52.74	\$51.52	-0.34%
8/29/2012	\$50.60	\$52.62	\$51.61	0.18%
8/30/2012	\$50.19	\$52.29	\$51.24	-0.72%
8/31/2012	\$49.81	\$52.53	\$51.17	-0.14%
9/4/2012	\$57.69	\$59.74	\$58.72	13.76%
9/5/2012	\$57.58	\$60.10	\$58.84	0.21%
9/6/2012	\$58.36	\$60.86	\$59.61	1.30%
9/7/2012	\$58.54	\$60.87	\$59.70	0.16%
9/10/2012	\$58.27	\$60.22	\$59.24	-0.78%
9/11/2012	\$57.13	\$59.35	\$58.24	-1.70%
9/12/2012	\$57.20	\$59.33	\$58.27	0.04%
9/13/2012	\$57.17	\$59.73	\$58.45	0.32%
9/14/2012	\$54.89	\$57.94	\$56.41	-3.55%
9/17/2012	\$54.37	\$57.06	\$55.72	-1.24%
9/18/2012	\$53.66	\$57.19	\$55.43	-0.52%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
9/19/2012	\$53.97	\$57.07	\$55.52	0.17%
9/20/2012	\$53.84	\$56.92	\$55.38	-0.26%
9/21/2012	\$53.85	\$56.70	\$55.27	-0.19%
9/24/2012	\$53.25	\$56.01	\$54.63	-1.16%
9/25/2012	\$53.70	\$57.33	\$55.52	1.60%
9/26/2012	\$53.60	\$56.40	\$55.00	-0.94%
9/27/2012	\$53.50	\$56.80	\$55.15	0.27%
9/28/2012	\$53.13	\$56.58	\$54.86	-0.53%
10/1/2012	\$54.34	\$57.70	\$56.02	2.10%
10/2/2012	\$53.97	\$57.31	\$55.64	-0.68%
10/3/2012	\$54.81	\$58.31	\$56.56	1.65%
10/4/2012	\$54.97	\$58.30	\$56.63	0.12%
10/5/2012	\$55.03	\$58.26	\$56.64	0.02%
10/8/2012	\$54.63	\$57.66	\$56.14	-0.89%
10/9/2012	\$54.39	\$57.31	\$55.85	-0.52%
10/10/2012	\$53.68	\$56.72	\$55.20	-1.17%
10/11/2012	\$54.51	\$57.39	\$55.95	1.35%
10/12/2012	\$53.91	\$57.09	\$55.50	-0.82%
10/15/2012	\$54.52	\$57.48	\$56.00	0.89%
10/16/2012	\$55.63	\$58.86	\$57.25	2.21%
10/17/2012	\$57.05	\$59.78	\$58.42	2.02%
10/18/2012	\$56.40	\$59.54	\$57.97	-0.76%
10/19/2012	\$55.07	\$58.27	\$56.67	-2.27%
10/22/2012	\$54.23	\$57.28	\$55.76	-1.62%
10/23/2012	\$52.91	\$55.95	\$54.43	-2.41%
10/24/2012	\$53.17	\$56.33	\$54.75	0.58%
10/25/2012	\$53.65	\$56.58	\$55.11	0.66%
10/26/2012	\$53.94	\$56.94	\$55.44	0.59%
10/31/2012	\$53.99	\$57.69	\$55.84	0.72%
11/1/2012	\$54.41	\$58.43	\$56.42	1.03%
11/2/2012	\$55.01	\$57.53	\$56.27	-0.27%
11/5/2012	\$53.78	\$56.86	\$55.32	-1.70%
11/6/2012	\$52.50	\$55.49	\$53.99	-2.42%
11/7/2012	\$51.55	\$54.68	\$53.12	-1.64%
11/8/2012	\$52.27	\$55.04	\$53.66	1.01%
11/9/2012	\$51.55	\$56.13	\$53.84	0.35%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
11/12/2012	\$52.99	\$56.06	\$54.53	1.27%
11/13/2012	\$52.98	\$56.00	\$54.49	-0.07%
11/14/2012	\$51.85	\$55.64	\$53.75	-1.37%
11/15/2012	\$50.91	\$54.75	\$52.83	-1.72%
11/16/2012	\$52.53	\$56.11	\$54.32	2.78%
11/19/2012	\$53.47	\$56.86	\$55.16	1.55%
11/20/2012	\$53.14	\$56.31	\$54.73	-0.80%
11/21/2012	\$53.06	\$56.35	\$54.70	-0.04%
11/23/2012	\$53.30	\$56.61	\$54.95	0.46%
11/26/2012	\$54.13	\$57.10	\$55.61	1.19%
11/27/2012	\$53.36	\$56.91	\$55.13	-0.87%
11/28/2012	\$52.91	\$56.32	\$54.62	-0.94%
11/29/2012	\$53.32	\$56.77	\$55.04	0.78%
11/30/2012	\$53.37	\$56.62	\$54.99	-0.09%
12/3/2012	\$53.69	\$56.88	\$55.29	0.53%
12/4/2012	\$54.52	\$57.93	\$56.22	1.69%
12/5/2012	\$55.07	\$59.56	\$57.31	1.92%
12/6/2012	\$55.87	\$59.13	\$57.50	0.32%
12/7/2012	\$55.75	\$59.35	\$57.55	0.10%
12/10/2012	\$56.06	\$59.45	\$57.75	0.34%
12/11/2012	\$57.11	\$60.60	\$58.85	1.89%
12/12/2012	\$57.37	\$60.92	\$59.14	0.49%
12/13/2012	\$56.48	\$59.91	\$58.20	-1.61%
12/14/2012	\$56.77	\$59.98	\$58.37	0.31%
12/17/2012	\$57.51	\$60.74	\$59.13	1.28%
12/18/2012	\$58.08	\$61.20	\$59.64	0.86%
12/19/2012	\$57.85	\$61.11	\$59.48	-0.26%
12/20/2012	\$58.66	\$62.13	\$60.39	1.52%
12/21/2012	\$58.84	\$61.95	\$60.40	0.00%
12/24/2012	\$58.67	\$61.92	\$60.30	-0.17%
12/26/2012	\$58.40	\$61.93	\$60.17	-0.21%
12/27/2012	\$57.63	\$60.95	\$59.29	-1.47%
12/28/2012	\$57.25	\$60.68	\$58.96	-0.56%
12/31/2012	\$57.82	\$60.89	\$59.36	0.67%
1/2/2013	\$59.22	\$62.46	\$60.84	2.46%
1/3/2013	\$59.09	\$62.81	\$60.95	0.19%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
1/4/2013	\$58.50	\$62.25	\$60.38	-0.95%
1/7/2013	\$59.09	\$62.52	\$60.81	0.71%
1/8/2013	\$60.19	\$63.46	\$61.83	1.66%
1/9/2013	\$61.76	\$64.99	\$63.38	2.48%
1/10/2013	\$62.14	\$65.15	\$63.65	0.43%
1/11/2013	\$61.91	\$64.99	\$63.45	-0.31%
1/14/2013	\$61.84	\$64.54	\$63.19	-0.41%
1/15/2013	\$61.52	\$64.87	\$63.19	0.01%
1/16/2013	\$61.70	\$64.81	\$63.25	0.09%
1/17/2013	\$62.33	\$65.02	\$63.68	0.67%
1/18/2013	\$62.13	\$64.42	\$63.28	-0.63%
1/22/2013	\$62.27	\$65.20	\$63.74	0.72%
1/23/2013	\$62.36	\$65.02	\$63.69	-0.07%
1/24/2013	\$62.88	\$65.50	\$64.19	0.78%
1/25/2013	\$63.57	\$66.29	\$64.93	1.15%
1/28/2013	\$64.00	\$66.50	\$65.25	0.49%
1/29/2013	\$64.18	\$66.86	\$65.52	0.41%
1/30/2013	\$64.35	\$67.48	\$65.91	0.60%
1/31/2013	\$64.63	\$67.43	\$66.03	0.18%
2/1/2013	\$65.19	\$68.40	\$66.79	1.15%
2/4/2013	\$64.92	\$67.68	\$66.30	-0.74%
2/5/2013	\$65.19	\$67.87	\$66.53	0.35%
2/6/2013	\$65.18	\$67.84	\$66.51	-0.03%
2/7/2013	\$65.39	\$67.98	\$66.69	0.27%
2/8/2013	\$65.97	\$68.80	\$67.38	1.04%
2/11/2013	\$66.13	\$68.58	\$67.36	-0.04%
2/12/2013	\$66.05	\$68.56	\$67.30	-0.08%
2/13/2013	\$65.59	\$68.50	\$67.05	-0.38%
2/14/2013	\$65.12	\$67.75	\$66.43	-0.92%
2/15/2013	\$64.78	\$67.51	\$66.15	-0.43%
2/19/2013	\$65.00	\$68.09	\$66.55	0.60%
2/20/2013	\$64.64	\$67.78	\$66.21	-0.51%
2/21/2013	\$63.21	\$66.83	\$65.02	-1.81%
2/22/2013	\$63.87	\$67.15	\$65.51	0.75%
2/25/2013	\$64.04	\$67.04	\$65.54	0.05%
2/26/2013	\$63.38	\$66.32	\$64.85	-1.06%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
2/27/2013	\$64.68	\$67.65	\$66.16	2.01%
2/28/2013	\$64.94	\$68.40	\$66.67	0.77%
3/1/2013	\$65.54	\$68.82	\$67.18	0.76%
3/4/2013	\$66.95	\$69.90	\$68.43	1.84%
3/5/2013	\$67.81	\$70.91	\$69.36	1.35%
3/6/2013	\$67.01	\$69.93	\$68.47	-1.29%
3/7/2013	\$67.86	\$70.44	\$69.15	0.98%
3/8/2013	\$69.12	\$71.41	\$70.26	1.60%
3/11/2013	\$69.15	\$71.69	\$70.42	0.23%
3/12/2013	\$68.90	\$71.58	\$70.24	-0.26%
3/13/2013	\$68.43	\$71.01	\$69.72	-0.75%
3/14/2013	\$68.44	\$70.88	\$69.66	-0.09%
3/15/2013	\$68.18	\$70.76	\$69.47	-0.27%
3/18/2013	\$68.36	\$71.22	\$69.79	0.46%
3/19/2013	\$69.69	\$72.29	\$70.99	1.70%
3/20/2013	\$71.62	\$74.65	\$73.13	2.98%
3/21/2013	\$71.44	\$74.21	\$72.82	-0.43%
3/22/2013	\$71.84	\$74.78	\$73.31	0.67%
3/25/2013	\$72.34	\$74.98	\$73.66	0.47%
3/26/2013	\$72.54	\$75.17	\$73.86	0.27%
3/27/2013	\$72.21	\$74.87	\$73.54	-0.43%
3/28/2013	\$73.12	\$75.56	\$74.34	1.08%
4/1/2013	\$74.42	\$76.88	\$75.65	1.74%
4/2/2013	\$73.98	\$76.60	\$75.29	-0.47%
4/3/2013	\$70.04	\$72.83	\$71.43	-5.26%
4/4/2013	\$70.53	\$73.22	\$71.88	0.62%
4/5/2013	\$69.94	\$72.51	\$71.23	-0.91%
4/8/2013	\$70.34	\$72.74	\$71.54	0.44%
4/9/2013	\$70.64	\$72.80	\$71.72	0.25%
4/10/2013	\$71.41	\$73.75	\$72.58	1.20%
4/11/2013	\$72.07	\$74.47	\$73.27	0.94%
4/12/2013	\$71.66	\$74.19	\$72.93	-0.47%
4/15/2013	\$70.86	\$73.67	\$72.26	-0.91%
4/16/2013	\$71.34	\$73.84	\$72.59	0.45%
4/17/2013	\$70.98	\$73.49	\$72.23	-0.50%
4/18/2013	\$71.12	\$73.67	\$72.39	0.22%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
4/19/2013	\$73.25	\$76.00	\$74.63	3.04%
4/22/2013	\$72.86	\$75.44	\$74.15	-0.64%
4/23/2013	\$72.93	\$75.94	\$74.43	0.38%
4/24/2013	\$73.54	\$75.66	\$74.60	0.23%
4/25/2013	\$72.54	\$74.45	\$73.49	-1.49%
4/26/2013	\$71.77	\$74.26	\$73.01	-0.66%
4/29/2013	\$74.10	\$77.02	\$75.56	3.43%
4/30/2013	\$74.34	\$77.22	\$75.78	0.29%
5/1/2013	\$71.90	\$74.99	\$73.45	-3.13%
5/2/2013	\$70.65	\$73.61	\$72.13	-1.80%
5/3/2013	\$71.65	\$74.42	\$73.04	1.25%
5/6/2013	\$72.23	\$74.40	\$73.31	0.38%
5/7/2013	\$72.54	\$74.89	\$73.71	0.54%
5/8/2013	\$72.54	\$74.87	\$73.71	-0.01%
5/9/2013	\$71.19	\$74.02	\$72.60	-1.51%
5/10/2013	\$71.45	\$74.58	\$73.01	0.56%
5/13/2013	\$73.91	\$76.58	\$75.25	3.01%
5/14/2013	\$75.40	\$77.95	\$76.67	1.88%
5/15/2013	\$74.84	\$77.41	\$76.13	-0.71%
5/16/2013	\$74.44	\$77.01	\$75.73	-0.53%
5/17/2013	\$75.98	\$78.96	\$77.47	2.27%
5/20/2013	\$73.95	\$76.74	\$75.34	-2.78%
5/21/2013	\$73.71	\$76.90	\$75.31	-0.05%
5/22/2013	\$73.26	\$76.15	\$74.71	-0.80%
5/23/2013	\$72.60	\$75.71	\$74.16	-0.74%
5/24/2013	\$82.71	\$85.21	\$83.96	12.42%
5/28/2013	\$90.27	\$93.19	\$91.73	8.85%
5/29/2013	\$89.11	\$91.99	\$90.55	-1.29%
5/30/2013	\$89.38	\$92.03	\$90.71	0.17%
5/31/2013	\$89.75	\$92.37	\$91.06	0.39%
6/3/2013	\$87.10	\$89.42	\$88.26	-3.12%
6/4/2013	\$84.11	\$86.42	\$85.26	-3.45%
6/5/2013	\$82.89	\$85.22	\$84.06	-1.43%
6/6/2013	\$82.98	\$85.56	\$84.27	0.25%
6/7/2013	\$83.90	\$86.40	\$85.15	1.04%
6/10/2013	\$83.64	\$86.11	\$84.87	-0.33%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
6/11/2013	\$82.63	\$84.97	\$83.80	-1.27%
6/12/2013	\$82.01	\$84.37	\$83.19	-0.73%
6/13/2013	\$83.79	\$86.27	\$85.03	2.19%
6/14/2013	\$82.84	\$85.03	\$83.94	-1.30%
6/17/2013	\$83.14	\$85.71	\$84.42	0.58%
6/18/2013	\$84.51	\$86.75	\$85.63	1.41%
6/19/2013	\$84.95	\$87.23	\$86.09	0.55%
6/20/2013	\$82.55	\$85.04	\$83.79	-2.71%
6/21/2013	\$82.23	\$84.99	\$83.61	-0.22%
6/24/2013	\$82.57	\$85.33	\$83.95	0.40%
6/25/2013	\$83.43	\$85.98	\$84.71	0.90%
6/26/2013	\$83.69	\$86.19	\$84.94	0.27%
6/27/2013	\$84.42	\$87.17	\$85.80	1.00%
6/28/2013	\$84.29	\$87.13	\$85.71	-0.10%
7/1/2013	\$86.31	\$89.07	\$87.69	2.28%
7/2/2013	\$88.13	\$90.75	\$89.44	1.98%
7/3/2013	\$87.66	\$90.46	\$89.06	-0.43%
7/5/2013	\$87.14	\$89.90	\$88.52	-0.61%
7/8/2013	\$88.26	\$90.76	\$89.51	1.11%
7/9/2013	\$88.14	\$90.81	\$89.47	-0.04%
7/10/2013	\$88.51	\$91.08	\$89.79	0.36%
7/11/2013	\$90.50	\$93.13	\$91.82	2.23%
7/12/2013	\$91.34	\$93.96	\$92.65	0.90%
7/15/2013	\$91.81	\$94.47	\$93.14	0.53%
7/16/2013	\$89.94	\$92.74	\$91.34	-1.95%
7/17/2013	\$89.93	\$92.42	\$91.18	-0.18%
7/18/2013	\$89.95	\$92.37	\$91.16	-0.02%
7/19/2013	\$89.20	\$91.83	\$90.52	-0.71%
7/22/2013	\$88.96	\$91.51	\$90.23	-0.31%
7/23/2013	\$88.60	\$91.95	\$90.27	0.04%
7/24/2013	\$89.56	\$92.44	\$91.00	0.80%
7/25/2013	\$89.98	\$92.85	\$91.42	0.46%
7/26/2013	\$90.03	\$92.82	\$91.42	0.01%
7/29/2013	\$90.10	\$92.84	\$91.47	0.05%
7/30/2013	\$89.83	\$92.48	\$91.16	-0.34%
7/31/2013	\$91.43	\$94.25	\$92.84	1.82%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
8/1/2013	\$94.04	\$97.01	\$95.53	2.86%
8/2/2013	\$94.57	\$97.31	\$95.94	0.43%
8/5/2013	\$94.11	\$96.57	\$95.34	-0.63%
8/6/2013	\$94.31	\$96.32	\$95.31	-0.03%
8/7/2013	\$95.55	\$98.25	\$96.90	1.65%
8/8/2013	\$100.08	\$102.92	\$101.50	4.64%
8/9/2013	\$99.91	\$102.68	\$101.30	-0.20%
8/12/2013	\$100.31	\$102.64	\$101.47	0.18%
8/13/2013	\$101.98	\$104.45	\$103.22	1.70%
8/14/2013	\$102.75	\$104.96	\$103.86	0.62%
8/15/2013	\$100.76	\$103.51	\$102.13	-1.67%
8/16/2013	\$101.64	\$103.68	\$102.66	0.52%
8/19/2013	\$99.70	\$102.58	\$101.14	-1.50%
8/20/2013	\$99.63	\$102.68	\$101.16	0.02%
8/21/2013	\$97.94	\$101.12	\$99.53	-1.62%
8/22/2013	\$97.44	\$100.36	\$98.90	-0.64%
8/23/2013	\$97.76	\$100.58	\$99.17	0.27%
8/26/2013	\$97.96	\$100.61	\$99.29	0.12%
8/27/2013	\$94.17	\$96.98	\$95.58	-3.81%
8/28/2013	\$95.85	\$98.46	\$97.16	1.64%
8/29/2013	\$96.82	\$99.86	\$98.34	1.21%
8/30/2013	\$96.71	\$99.70	\$98.21	-0.14%
9/3/2013	\$97.55	\$100.17	\$98.86	0.66%
9/4/2013	\$98.23	\$100.96	\$99.59	0.74%
9/5/2013	\$97.79	\$100.59	\$99.19	-0.41%
9/6/2013	\$98.27	\$101.42	\$99.85	0.66%
9/9/2013	\$99.32	\$102.06	\$100.69	0.84%
9/10/2013	\$98.83	\$101.60	\$100.21	-0.48%
9/11/2013	\$98.52	\$101.15	\$99.84	-0.38%
9/12/2013	\$98.12	\$100.78	\$99.45	-0.39%
9/13/2013	\$97.50	\$100.28	\$98.89	-0.56%
9/16/2013	\$98.83	\$102.49	\$100.66	1.77%
9/17/2013	\$100.69	\$104.12	\$102.41	1.72%
9/18/2013	\$100.14	\$104.22	\$102.18	-0.22%
9/19/2013	\$103.87	\$107.37	\$105.62	3.31%
9/20/2013	\$102.83	\$106.09	\$104.46	-1.10%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
9/23/2013	\$101.21	\$104.86	\$103.03	-1.38%
9/24/2013	\$101.81	\$105.17	\$103.49	0.44%
9/25/2013	\$100.64	\$104.12	\$102.38	-1.08%
9/26/2013	\$101.29	\$104.37	\$102.83	0.44%
9/27/2013	\$101.84	\$105.50	\$103.67	0.81%
9/30/2013	\$102.21	\$105.84	\$104.03	0.34%
10/1/2013	\$105.59	\$108.90	\$107.25	3.05%
10/2/2013	\$107.10	\$110.75	\$108.92	1.55%
10/3/2013	\$109.17	\$112.70	\$110.94	1.83%
10/4/2013	\$108.91	\$112.18	\$110.54	-0.35%
10/7/2013	\$108.39	\$111.97	\$110.18	-0.33%
10/8/2013	\$104.14	\$107.62	\$105.88	-3.98%
10/9/2013	\$104.64	\$108.07	\$106.36	0.45%
10/10/2013	\$107.29	\$110.85	\$109.07	2.52%
10/11/2013	\$107.28	\$111.09	\$109.19	0.11%
10/14/2013	\$106.85	\$110.63	\$108.74	-0.41%
10/15/2013	\$107.53	\$110.88	\$109.21	0.43%
10/16/2013	\$108.47	\$111.80	\$110.14	0.85%
10/17/2013	\$109.48	\$112.97	\$111.23	0.99%
10/18/2013	\$110.64	\$113.94	\$112.29	0.95%
10/21/2013	\$109.87	\$113.56	\$111.72	-0.51%
10/22/2013	\$110.75	\$113.57	\$112.16	0.40%
10/23/2013	\$111.80	\$115.24	\$113.52	1.20%
10/24/2013	\$112.38	\$115.60	\$113.99	0.42%
10/25/2013	\$110.54	\$114.01	\$112.28	-1.52%
10/28/2013	\$108.32	\$111.87	\$110.09	-1.96%
10/29/2013	\$108.90	\$112.25	\$110.58	0.44%
10/30/2013	\$106.64	\$110.44	\$108.54	-1.86%
10/31/2013	\$103.39	\$107.51	\$105.45	-2.89%
11/1/2013	\$108.04	\$112.20	\$110.12	4.33%
11/4/2013	\$108.05	\$111.48	\$109.76	-0.32%
11/5/2013	\$107.46	\$110.86	\$109.16	-0.55%
11/6/2013	\$104.25	\$107.73	\$105.99	-2.95%
11/7/2013	\$101.44	\$104.92	\$103.18	-2.69%
11/8/2013	\$103.25	\$106.34	\$104.80	1.56%
11/11/2013	\$103.29	\$106.43	\$104.86	0.06%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
11/12/2013	\$103.45	\$106.74	\$105.10	0.22%
11/13/2013	\$104.76	\$107.88	\$106.32	1.16%
11/14/2013	\$103.63	\$107.14	\$105.38	-0.89%
11/15/2013	\$104.78	\$108.24	\$106.51	1.07%
11/18/2013	\$104.88	\$108.39	\$106.64	0.12%
11/19/2013	\$102.31	\$108.51	\$105.41	-1.16%
11/20/2013	\$104.49	\$107.19	\$105.84	0.41%
11/21/2013	\$106.36	\$109.65	\$108.00	2.02%
11/22/2013	\$107.24	\$110.59	\$108.92	0.84%
11/25/2013	\$107.29	\$110.27	\$108.78	-0.12%
11/26/2013	\$107.29	\$110.18	\$108.73	-0.05%
11/27/2013	\$106.50	\$109.57	\$108.04	-0.65%
11/29/2013	\$107.84	\$110.74	\$109.29	1.16%
12/2/2013	\$108.04	\$110.80	\$109.42	0.12%
12/3/2013	\$106.62	\$110.54	\$108.58	-0.77%
12/4/2013	\$105.41	\$109.46	\$107.44	-1.06%
12/5/2013	\$104.86	\$107.55	\$106.20	-1.16%
12/6/2013	\$105.15	\$109.44	\$107.29	1.02%
12/9/2013	\$105.69	\$109.41	\$107.55	0.24%
12/10/2013	\$106.39	\$109.68	\$108.03	0.44%
12/11/2013	\$104.67	\$108.53	\$106.60	-1.33%
12/12/2013	\$104.35	\$107.84	\$106.10	-0.48%
12/13/2013	\$104.30	\$107.98	\$106.14	0.04%
12/16/2013	\$108.51	\$112.00	\$110.25	3.80%
12/17/2013	\$107.65	\$110.87	\$109.26	-0.90%
12/18/2013	\$109.30	\$113.82	\$111.56	2.08%
12/19/2013	\$109.59	\$112.80	\$111.20	-0.32%
12/20/2013	\$109.92	\$112.94	\$111.43	0.21%
12/23/2013	\$110.32	\$113.69	\$112.01	0.52%
12/24/2013	\$110.52	\$113.69	\$112.10	0.09%
12/26/2013	\$110.73	\$114.02	\$112.37	0.24%
12/27/2013	\$111.14	\$114.41	\$112.78	0.36%
12/30/2013	\$114.77	\$118.48	\$116.63	3.36%
12/31/2013	\$115.11	\$118.51	\$116.81	0.16%
1/2/2014	\$114.47	\$118.29	\$116.38	-0.37%
1/3/2014	\$114.75	\$118.54	\$116.64	0.22%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
1/6/2014	\$110.47	\$114.14	\$112.30	-3.79%
1/7/2014	\$122.55	\$126.47	\$124.51	10.32%
1/8/2014	\$124.62	\$129.61	\$127.11	2.07%
1/9/2014	\$129.31	\$132.68	\$131.00	3.01%
1/10/2014	\$130.09	\$134.23	\$132.16	0.89%
1/13/2014	\$128.01	\$132.13	\$130.07	-1.60%
1/14/2014	\$131.42	\$136.60	\$134.01	2.98%
1/15/2014	\$130.61	\$134.79	\$132.70	-0.98%
1/16/2014	\$133.51	\$137.86	\$135.68	2.22%
1/17/2014	\$134.49	\$139.23	\$136.86	0.87%
1/21/2014	\$133.41	\$139.18	\$136.30	-0.41%
1/22/2014	\$133.80	\$138.72	\$136.26	-0.03%
1/23/2014	\$131.38	\$136.55	\$133.96	-1.70%
1/24/2014	\$128.99	\$134.00	\$131.49	-1.86%
1/27/2014	\$127.81	\$132.71	\$130.26	-0.94%
1/28/2014	\$129.25	\$134.67	\$131.96	1.30%
1/29/2014	\$128.60	\$134.66	\$131.63	-0.25%
1/30/2014	\$132.55	\$137.52	\$135.04	2.56%
1/31/2014	\$132.46	\$137.49	\$134.98	-0.04%
2/3/2014	\$130.01	\$135.26	\$132.63	-1.75%
2/4/2014	\$131.42	\$136.58	\$134.00	1.02%
2/5/2014	\$130.30	\$135.61	\$132.95	-0.78%
2/6/2014	\$130.86	\$135.89	\$133.38	0.32%
2/7/2014	\$133.81	\$138.77	\$136.29	2.16%
2/10/2014	\$134.64	\$139.53	\$137.08	0.58%
2/11/2014	\$137.79	\$143.16	\$140.47	2.44%
2/12/2014	\$137.31	\$142.34	\$139.83	-0.46%
2/13/2014	\$137.94	\$142.94	\$140.44	0.44%
2/14/2014	\$136.20	\$141.40	\$138.80	-1.17%
2/18/2014	\$142.88	\$147.54	\$145.21	4.51%
2/19/2014	\$141.89	\$146.93	\$144.41	-0.55%
2/20/2014	\$144.50	\$149.20	\$146.85	1.68%
2/21/2014	\$143.45	\$148.35	\$145.90	-0.65%
2/24/2014	\$143.03	\$148.03	\$145.53	-0.25%
2/25/2014	\$141.73	\$146.51	\$144.12	-0.97%
2/26/2014	\$143.03	\$148.18	\$145.61	1.03%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
2/27/2014	\$144.95	\$150.31	\$147.63	1.38%
2/28/2014	\$141.00	\$146.23	\$143.61	-2.76%
3/3/2014	\$139.24	\$144.44	\$141.84	-1.24%
3/4/2014	\$142.93	\$147.92	\$145.42	2.49%
3/5/2014	\$141.63	\$146.53	\$144.08	-0.93%
3/6/2014	\$134.85	\$140.21	\$137.53	-4.65%
3/7/2014	\$137.27	\$142.78	\$140.02	1.80%
3/10/2014	\$137.84	\$142.19	\$140.02	-0.01%
3/11/2014	\$137.28	\$142.03	\$139.66	-0.26%
3/12/2014	\$137.71	\$142.58	\$140.14	0.35%
3/13/2014	\$136.76	\$141.63	\$139.19	-0.68%
3/14/2014	\$136.20	\$141.44	\$138.82	-0.27%
3/17/2014	\$138.44	\$143.13	\$140.79	1.40%
3/18/2014	\$140.67	\$145.36	\$143.01	1.57%
3/19/2014	\$137.52	\$142.64	\$140.08	-2.07%
3/20/2014	\$137.81	\$142.60	\$140.20	0.09%
3/21/2014	\$133.04	\$137.58	\$135.31	-3.55%
3/24/2014	\$127.80	\$133.26	\$130.53	-3.59%
3/25/2014	\$128.69	\$133.54	\$131.12	0.45%
3/26/2014	\$125.69	\$131.15	\$128.42	-2.08%
3/27/2014	\$124.41	\$129.54	\$126.98	-1.13%
3/28/2014	\$125.21	\$130.09	\$127.65	0.53%
3/31/2014	\$128.61	\$133.61	\$131.11	2.67%
4/1/2014	\$130.25	\$135.77	\$133.01	1.44%
4/2/2014	\$130.17	\$135.59	\$132.88	-0.10%
4/3/2014	\$125.61	\$130.87	\$128.24	-3.56%
4/4/2014	\$121.19	\$126.91	\$124.05	-3.32%
4/7/2014	\$116.10	\$121.40	\$118.75	-4.37%
4/8/2014	\$118.44	\$124.20	\$121.32	2.14%
4/9/2014	\$125.60	\$130.82	\$128.21	5.53%
4/10/2014	\$119.94	\$125.15	\$122.55	-4.52%
4/11/2014	\$116.69	\$121.81	\$119.25	-2.73%
4/14/2014	\$113.86	\$119.35	\$116.60	-2.25%
4/15/2014	\$116.43	\$121.53	\$118.98	2.02%
4/16/2014	\$118.17	\$123.18	\$120.68	1.42%
4/17/2014	\$118.85	\$123.83	\$121.34	0.55%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
4/21/2014	\$122.28	\$127.67	\$124.98	2.95%
4/22/2014	\$131.16	\$137.77	\$134.46	7.32%
4/23/2014	\$129.96	\$135.25	\$132.61	-1.39%
4/24/2014	\$130.97	\$136.32	\$133.64	0.78%
4/25/2014	\$129.74	\$135.27	\$132.50	-0.86%
4/28/2014	\$129.92	\$135.12	\$132.52	0.01%
4/29/2014	\$129.56	\$135.34	\$132.45	-0.05%
4/30/2014	\$129.44	\$135.16	\$132.30	-0.11%
5/1/2014	\$134.11	\$139.37	\$136.74	3.30%
5/2/2014	\$132.43	\$137.99	\$135.21	-1.12%
5/5/2014	\$132.20	\$137.80	\$135.00	-0.16%
5/6/2014	\$129.93	\$135.41	\$132.67	-1.74%
5/7/2014	\$129.05	\$134.20	\$131.63	-0.79%
5/8/2014	\$127.66	\$132.75	\$130.20	-1.09%
5/9/2014	\$127.24	\$132.44	\$129.84	-0.28%
5/12/2014	\$126.09	\$131.17	\$128.63	-0.94%
5/13/2014	\$126.76	\$132.18	\$129.47	0.65%
5/14/2014	\$123.94	\$129.06	\$126.50	-2.32%
5/15/2014	\$120.53	\$125.84	\$123.18	-2.66%
5/16/2014	\$122.71	\$127.95	\$125.33	1.73%
5/19/2014	\$123.07	\$128.60	\$125.83	0.40%
5/20/2014	\$127.06	\$132.12	\$129.59	2.95%
5/21/2014	\$126.31	\$132.41	\$129.36	-0.18%
5/22/2014	\$127.30	\$132.75	\$130.02	0.51%
5/23/2014	\$129.86	\$135.23	\$132.55	1.92%
5/27/2014	\$126.09	\$131.47	\$128.78	-2.88%
5/28/2014	\$123.89	\$129.44	\$126.66	-1.66%
5/29/2014	\$125.29	\$130.97	\$128.13	1.15%
5/30/2014	\$127.25	\$134.31	\$130.78	2.05%
6/2/2014	\$130.67	\$135.26	\$132.96	1.66%
6/3/2014	\$128.86	\$133.82	\$131.34	-1.23%
6/4/2014	\$125.91	\$130.91	\$128.41	-2.26%
6/5/2014	\$125.27	\$130.09	\$127.68	-0.57%
6/6/2014	\$124.72	\$129.29	\$127.00	-0.53%
6/9/2014	\$123.99	\$128.83	\$126.41	-0.47%
6/10/2014	\$122.54	\$128.52	\$125.53	-0.70%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
6/11/2014	\$122.16	\$127.18	\$124.67	-0.69%
6/12/2014	\$118.18	\$123.39	\$120.79	-3.16%
6/13/2014	\$116.96	\$122.07	\$119.51	-1.06%
6/16/2014	\$114.83	\$120.04	\$117.43	-1.76%
6/17/2014	\$116.61	\$122.01	\$119.31	1.59%
6/18/2014	\$115.00	\$121.20	\$118.10	-1.02%
6/19/2014	\$114.89	\$119.19	\$117.04	-0.90%
6/20/2014	\$119.07	\$124.28	\$121.67	3.88%
6/23/2014	\$118.42	\$123.96	\$121.19	-0.40%
6/24/2014	\$117.96	\$123.40	\$120.68	-0.42%
6/25/2014	\$122.31	\$128.22	\$125.26	3.73%
6/26/2014	\$123.25	\$128.82	\$126.04	0.62%
6/27/2014	\$125.42	\$130.53	\$127.98	1.53%
6/30/2014	\$123.42	\$129.08	\$126.25	-1.36%
7/1/2014	\$122.94	\$127.92	\$125.43	-0.66%
7/2/2014	\$122.26	\$127.85	\$125.05	-0.30%
7/3/2014	\$122.57	\$128.71	\$125.64	0.47%
7/7/2014	\$120.21	\$125.68	\$122.94	-2.17%
7/8/2014	\$118.61	\$124.17	\$121.39	-1.27%
7/9/2014	\$117.85	\$123.54	\$120.70	-0.58%
7/10/2014	\$116.81	\$122.67	\$119.74	-0.80%
7/11/2014	\$117.42	\$122.66	\$120.04	0.25%
7/14/2014	\$118.15	\$123.28	\$120.72	0.56%
7/15/2014	\$116.96	\$121.71	\$119.34	-1.15%
7/16/2014	\$118.28	\$123.23	\$120.76	1.18%
7/17/2014	\$119.01	\$123.98	\$121.49	0.61%
7/18/2014	\$119.58	\$124.37	\$121.98	0.40%
7/21/2014	\$122.49	\$127.31	\$124.90	2.37%
7/22/2014	\$120.66	\$125.51	\$123.08	-1.47%
7/23/2014	\$121.05	\$126.22	\$123.63	0.45%
7/24/2014	\$121.26	\$126.56	\$123.91	0.23%
7/25/2014	\$120.74	\$125.74	\$123.24	-0.54%
7/28/2014	\$120.56	\$125.80	\$123.18	-0.05%
7/29/2014	\$120.61	\$125.84	\$123.23	0.04%
7/30/2014	\$123.05	\$128.44	\$125.75	2.02%
7/31/2014	\$113.97	\$119.34	\$116.66	-7.50%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
8/1/2014	\$115.03	\$120.32	\$117.68	0.87%
8/4/2014	\$114.30	\$119.54	\$116.92	-0.64%
8/5/2014	\$108.70	\$113.97	\$111.33	-4.90%
8/6/2014	\$108.04	\$112.82	\$110.43	-0.81%
8/7/2014	\$104.10	\$109.74	\$106.92	-3.23%
8/8/2014	\$106.12	\$110.82	\$108.47	1.44%
8/11/2014	\$104.66	\$109.88	\$107.27	-1.12%
8/12/2014	\$104.98	\$110.18	\$107.58	0.29%
8/13/2014	\$107.38	\$112.08	\$109.73	1.98%
8/14/2014	\$108.31	\$112.30	\$110.31	0.52%
8/15/2014	\$109.25	\$114.55	\$111.90	1.43%
8/18/2014	\$107.52	\$112.45	\$109.98	-1.72%
8/19/2014	\$110.12	\$115.53	\$112.83	2.55%
8/20/2014	\$110.31	\$115.38	\$112.84	0.01%
8/21/2014	\$110.58	\$115.95	\$113.27	0.38%
8/22/2014	\$113.88	\$119.04	\$116.46	2.78%
8/25/2014	\$113.20	\$118.65	\$115.93	-0.46%
8/26/2014	\$113.35	\$119.23	\$116.29	0.31%
8/27/2014	\$113.78	\$119.23	\$116.51	0.19%
8/28/2014	\$113.38	\$119.62	\$116.50	-0.01%
8/29/2014	\$113.79	\$119.10	\$116.44	-0.05%
9/2/2014	\$116.44	\$121.98	\$119.21	2.35%
9/3/2014	\$115.94	\$121.38	\$118.66	-0.46%
9/4/2014	\$114.97	\$120.56	\$117.77	-0.75%
9/5/2014	\$116.45	\$121.55	\$119.00	1.04%
9/8/2014	\$116.89	\$122.13	\$119.51	0.43%
9/9/2014	\$117.45	\$122.42	\$119.93	0.35%
9/10/2014	\$116.53	\$122.21	\$119.37	-0.47%
9/11/2014	\$117.16	\$122.28	\$119.72	0.29%
9/12/2014	\$118.42	\$123.98	\$121.20	1.23%
9/15/2014	\$118.26	\$124.48	\$121.37	0.14%
9/16/2014	\$118.69	\$124.21	\$121.45	0.07%
9/17/2014	\$118.61	\$124.58	\$121.59	0.12%
9/18/2014	\$118.40	\$123.72	\$121.06	-0.44%
9/19/2014	\$114.73	\$120.28	\$117.50	-2.98%
9/22/2014	\$113.38	\$119.35	\$116.37	-0.97%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
9/23/2014	\$113.39	\$118.85	\$116.12	-0.21%
9/24/2014	\$121.61	\$127.34	\$124.48	6.95%
9/25/2014	\$124.66	\$130.33	\$127.49	2.39%
9/26/2014	\$126.01	\$130.74	\$128.38	0.69%
9/29/2014	\$127.54	\$132.69	\$130.11	1.34%
9/30/2014	\$127.73	\$132.98	\$130.35	0.18%
10/1/2014	\$127.93	\$133.31	\$130.62	0.20%
10/2/2014	\$125.02	\$130.38	\$127.70	-2.26%
10/3/2014	\$126.64	\$131.21	\$128.93	0.96%
10/6/2014	\$126.31	\$131.18	\$128.74	-0.14%
10/7/2014	\$122.68	\$128.64	\$125.66	-2.42%
10/8/2014	\$122.53	\$127.99	\$125.26	-0.32%
10/9/2014	\$120.36	\$125.78	\$123.07	-1.77%
10/10/2014	\$116.05	\$122.02	\$119.03	-3.33%
10/13/2014	\$111.46	\$117.47	\$114.47	-3.91%
10/14/2014	\$111.96	\$117.56	\$114.76	0.26%
10/15/2014	\$110.47	\$116.70	\$113.59	-1.03%
10/16/2014	\$115.05	\$120.92	\$117.98	3.80%
10/17/2014	\$116.69	\$122.69	\$119.69	1.44%
10/20/2014	\$121.04	\$127.19	\$124.12	3.63%
10/21/2014	\$127.36	\$132.85	\$130.10	4.71%
10/22/2014	\$126.23	\$131.76	\$129.00	-0.85%
10/23/2014	\$125.66	\$131.60	\$128.63	-0.28%
10/24/2014	\$125.93	\$131.10	\$128.51	-0.09%
10/27/2014	\$127.04	\$132.57	\$129.81	1.00%
10/28/2014	\$128.55	\$133.68	\$131.11	1.00%
10/29/2014	\$126.98	\$132.53	\$129.76	-1.04%
10/30/2014	\$127.79	\$134.46	\$131.13	1.05%
10/31/2014	\$129.84	\$135.46	\$132.65	1.15%
11/3/2014	\$129.85	\$136.29	\$133.07	0.31%
11/4/2014	\$129.77	\$136.86	\$133.32	0.19%
11/5/2014	\$128.62	\$134.39	\$131.50	-1.37%
11/6/2014	\$125.61	\$132.60	\$129.10	-1.84%
11/7/2014	\$122.57	\$128.42	\$125.50	-2.83%
11/10/2014	\$123.86	\$131.08	\$127.47	1.56%
11/11/2014	\$125.96	\$133.20	\$129.58	1.64%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
11/12/2014	\$126.42	\$134.28	\$130.35	0.59%
11/13/2014	\$128.17	\$134.74	\$131.46	0.85%
11/14/2014	\$130.09	\$136.68	\$133.38	1.45%
11/17/2014	\$132.70	\$139.50	\$136.10	2.02%
11/18/2014	\$139.09	\$145.32	\$142.20	4.39%
11/19/2014	\$138.66	\$144.57	\$141.61	-0.42%
11/20/2014	\$139.54	\$145.14	\$142.34	0.51%
11/21/2014	\$142.46	\$147.77	\$145.11	1.93%
11/24/2014	\$139.48	\$145.38	\$142.43	-1.87%
11/25/2014	\$140.93	\$146.73	\$143.83	0.98%
11/26/2014	\$141.53	\$147.10	\$144.31	0.34%
11/28/2014	\$142.33	\$147.98	\$145.15	0.58%
12/1/2014	\$142.04	\$148.33	\$145.19	0.02%
12/2/2014	\$142.51	\$148.43	\$145.47	0.19%
12/3/2014	\$142.41	\$148.68	\$145.55	0.05%
12/4/2014	\$141.63	\$147.11	\$144.37	-0.81%
12/5/2014	\$142.00	\$147.53	\$144.76	0.27%
12/8/2014	\$140.68	\$146.63	\$143.66	-0.77%
12/9/2014	\$137.27	\$143.19	\$140.23	-2.41%
12/10/2014	\$135.62	\$141.01	\$138.31	-1.38%
12/11/2014	\$135.76	\$141.72	\$138.74	0.31%
12/12/2014	\$136.07	\$141.73	\$138.90	0.12%
12/15/2014	\$134.59	\$140.15	\$137.37	-1.11%
12/16/2014	\$134.75	\$140.12	\$137.43	0.05%
12/17/2014	\$135.83	\$142.03	\$138.93	1.08%
12/18/2014	\$139.35	\$145.04	\$142.20	2.33%
12/19/2014	\$142.56	\$148.28	\$145.42	2.24%
12/22/2014	\$141.49	\$147.53	\$144.51	-0.62%
12/23/2014	\$137.55	\$143.51	\$140.53	-2.79%
12/24/2014	\$137.66	\$143.67	\$140.67	0.10%
12/26/2014	\$138.36	\$144.17	\$141.27	0.43%
12/29/2014	\$138.89	\$144.68	\$141.79	0.37%
12/30/2014	\$139.52	\$145.58	\$142.55	0.53%
12/31/2014	\$140.14	\$145.93	\$143.03	0.34%
1/2/2015	\$140.81	\$146.83	\$143.82	0.55%
1/5/2015	\$141.19	\$147.08	\$144.13	0.22%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
1/6/2015	\$139.73	\$145.83	\$142.78	-0.94%
1/7/2015	\$142.00	\$148.03	\$145.01	1.55%
1/8/2015	\$150.62	\$156.47	\$153.54	5.71%
1/9/2015	\$150.76	\$155.94	\$153.35	-0.12%
1/12/2015	\$151.78	\$157.04	\$154.41	0.69%
1/13/2015	\$154.70	\$160.02	\$157.36	1.89%
1/14/2015	\$154.03	\$159.23	\$156.63	-0.47%
1/15/2015	\$151.86	\$157.59	\$154.72	-1.22%
1/16/2015	\$153.50	\$158.85	\$156.17	0.93%
1/20/2015	\$153.05	\$158.32	\$155.68	-0.31%
1/21/2015	\$153.93	\$159.17	\$156.55	0.56%
1/22/2015	\$155.82	\$160.60	\$158.21	1.05%
1/23/2015	\$156.80	\$161.85	\$159.32	0.70%
1/26/2015	\$157.05	\$162.36	\$159.70	0.24%
1/27/2015	\$157.77	\$162.70	\$160.23	0.33%
1/28/2015	\$158.26	\$163.45	\$160.86	0.39%
1/29/2015	\$158.38	\$163.26	\$160.82	-0.02%
1/30/2015	\$157.64	\$162.74	\$160.19	-0.39%
2/2/2015	\$157.82	\$163.84	\$160.83	0.40%
2/3/2015	\$155.94	\$162.60	\$159.27	-0.97%
2/4/2015	\$157.16	\$163.08	\$160.12	0.53%
2/5/2015	\$158.08	\$163.87	\$160.98	0.53%
2/6/2015	\$159.36	\$164.33	\$161.85	0.54%
2/9/2015	\$157.57	\$162.88	\$160.22	-1.01%
2/10/2015	\$160.69	\$165.84	\$163.27	1.88%
2/11/2015	\$161.30	\$166.16	\$163.73	0.28%
2/12/2015	\$164.01	\$171.06	\$167.54	2.30%
2/13/2015	\$164.30	\$169.42	\$166.86	-0.40%
2/17/2015	\$165.72	\$171.49	\$168.61	1.04%
2/18/2015	\$165.38	\$170.81	\$168.10	-0.30%
2/19/2015	\$166.27	\$171.20	\$168.74	0.38%
2/20/2015	\$170.77	\$175.07	\$172.92	2.45%
2/23/2015	\$195.79	\$201.29	\$198.54	13.82%
2/24/2015	\$198.39	\$203.74	\$201.07	1.27%
2/25/2015	\$194.79	\$199.96	\$197.38	-1.85%
2/26/2015	\$198.09	\$203.56	\$200.82	1.73%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
2/27/2015	\$194.40	\$200.25	\$197.32	-1.76%
3/2/2015	\$199.66	\$205.12	\$202.39	2.53%
3/3/2015	\$199.33	\$204.57	\$201.95	-0.22%
3/4/2015	\$199.64	\$204.78	\$202.21	0.13%
3/5/2015	\$200.97	\$206.13	\$203.55	0.66%
3/6/2015	\$196.28	\$201.24	\$198.76	-2.38%
3/9/2015	\$201.19	\$207.12	\$204.16	2.68%
3/10/2015	\$199.17	\$204.20	\$201.68	-1.22%
3/11/2015	\$189.41	\$196.16	\$192.79	-4.51%
3/12/2015	\$190.15	\$195.53	\$192.84	0.03%
3/13/2015	\$193.99	\$199.58	\$196.79	2.03%
3/16/2015	\$199.18	\$204.64	\$201.91	2.57%
3/17/2015	\$198.16	\$203.11	\$200.63	-0.63%
3/18/2015	\$200.83	\$205.63	\$203.23	1.29%
3/19/2015	\$199.81	\$204.70	\$202.25	-0.48%
3/20/2015	\$201.22	\$206.07	\$203.64	0.69%
3/23/2015	\$201.03	\$206.53	\$203.78	0.06%
3/24/2015	\$200.90	\$205.81	\$203.35	-0.21%
3/25/2015	\$194.37	\$199.96	\$197.16	-3.09%
3/26/2015	\$195.25	\$200.49	\$197.87	0.36%
3/27/2015	\$195.40	\$200.53	\$197.96	0.05%
3/30/2015	\$197.72	\$202.96	\$200.34	1.20%
3/31/2015	\$196.48	\$201.60	\$199.04	-0.65%
4/1/2015	\$193.70	\$199.23	\$196.47	-1.30%
4/2/2015	\$195.55	\$200.76	\$198.16	0.86%
4/6/2015	\$195.14	\$200.59	\$197.87	-0.15%
4/7/2015	\$196.18	\$201.52	\$198.85	0.50%
4/8/2015	\$202.61	\$208.02	\$205.32	3.20%
4/9/2015	\$202.27	\$207.52	\$204.90	-0.21%
4/10/2015	\$204.41	\$209.53	\$206.97	1.01%
4/13/2015	\$206.04	\$211.32	\$208.68	0.82%
4/14/2015	\$205.33	\$210.68	\$208.01	-0.32%
4/15/2015	\$203.27	\$208.54	\$205.91	-1.01%
4/16/2015	\$203.70	\$208.87	\$206.28	0.18%
4/17/2015	\$202.33	\$207.41	\$204.87	-0.69%
4/20/2015	\$201.95	\$207.18	\$204.56	-0.15%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
4/21/2015	\$207.05	\$212.43	\$209.74	2.50%
4/22/2015	\$204.42	\$209.60	\$207.01	-1.31%
4/23/2015	\$206.20	\$211.64	\$208.92	0.92%
4/24/2015	\$206.73	\$212.42	\$209.58	0.31%
4/27/2015	\$199.74	\$204.90	\$202.32	-3.52%
4/28/2015	\$202.01	\$207.67	\$204.84	1.24%
4/29/2015	\$210.24	\$216.24	\$213.24	4.02%
4/30/2015	\$214.17	\$219.36	\$216.77	1.64%
5/1/2015	\$219.44	\$224.60	\$222.02	2.39%
5/4/2015	\$219.56	\$224.99	\$222.27	0.11%
5/5/2015	\$215.52	\$221.08	\$218.30	-1.80%
5/6/2015	\$212.50	\$217.92	\$215.21	-1.43%
5/7/2015	\$215.50	\$220.63	\$218.06	1.32%
5/8/2015	\$218.39	\$223.74	\$221.07	1.37%
5/11/2015	\$220.55	\$226.02	\$223.29	1.00%
5/12/2015	\$219.26	\$224.63	\$221.95	-0.60%
5/13/2015	\$217.28	\$222.42	\$219.85	-0.95%
5/14/2015	\$218.95	\$224.43	\$221.69	0.83%
5/15/2015	\$220.90	\$225.91	\$223.41	0.77%
5/18/2015	\$222.23	\$227.87	\$225.05	0.73%
5/19/2015	\$223.93	\$229.08	\$226.50	0.64%
5/20/2015	\$225.41	\$230.90	\$228.16	0.73%
5/21/2015	\$230.15	\$235.43	\$232.79	2.01%
5/22/2015	\$233.79	\$238.96	\$236.37	1.53%
5/26/2015	\$231.97	\$237.34	\$234.66	-0.73%
5/27/2015	\$235.05	\$240.93	\$237.99	1.41%
5/28/2015	\$237.61	\$243.68	\$240.65	1.11%
5/29/2015	\$235.57	\$240.68	\$238.12	-1.05%
6/1/2015	\$235.89	\$241.23	\$238.56	0.18%
6/2/2015	\$234.72	\$240.01	\$237.37	-0.50%
6/3/2015	\$235.54	\$241.06	\$238.30	0.39%
6/4/2015	\$229.88	\$234.93	\$232.40	-2.51%
6/5/2015	\$231.71	\$236.90	\$234.31	0.82%
6/8/2015	\$229.96	\$235.43	\$232.69	-0.69%
6/9/2015	\$229.02	\$234.69	\$231.86	-0.36%
6/10/2015	\$226.86	\$232.13	\$229.49	-1.02%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
6/11/2015	\$230.47	\$236.51	\$233.49	1.73%
6/12/2015	\$226.94	\$232.39	\$229.67	-1.65%
6/15/2015	\$227.13	\$232.38	\$229.75	0.04%
6/16/2015	\$224.88	\$230.96	\$227.92	-0.80%
6/17/2015	\$226.93	\$233.03	\$229.98	0.90%
6/18/2015	\$230.84	\$236.10	\$233.47	1.51%
6/19/2015	\$225.94	\$231.39	\$228.67	-2.08%
6/22/2015	\$230.19	\$235.70	\$232.94	1.85%
6/23/2015	\$231.03	\$236.20	\$233.62	0.29%
6/24/2015	\$226.22	\$232.41	\$229.31	-1.86%
6/25/2015	\$228.50	\$236.98	\$232.74	1.48%
6/26/2015	\$226.43	\$231.90	\$229.16	-1.55%
6/29/2015	\$217.60	\$223.22	\$220.41	-3.89%
6/30/2015	\$218.98	\$224.55	\$221.76	0.61%
7/1/2015	\$224.65	\$230.06	\$227.36	2.49%
7/2/2015	\$225.07	\$230.64	\$227.85	0.22%
7/6/2015	\$222.96	\$228.42	\$225.69	-0.95%
7/7/2015	\$223.68	\$229.30	\$226.49	0.35%
7/8/2015	\$221.55	\$227.13	\$224.34	-0.95%
7/9/2015	\$221.07	\$226.28	\$223.68	-0.30%
7/10/2015	\$228.93	\$234.18	\$231.56	3.46%
7/13/2015	\$232.08	\$237.31	\$234.70	1.35%
7/14/2015	\$233.30	\$238.95	\$236.12	0.61%
7/15/2015	\$232.37	\$237.62	\$234.99	-0.48%
7/16/2015	\$236.34	\$241.47	\$238.91	1.65%
7/17/2015	\$233.07	\$238.11	\$235.59	-1.40%
7/20/2015	\$236.69	\$241.92	\$239.31	1.57%
7/21/2015	\$237.18	\$242.20	\$239.69	0.16%
7/22/2015	\$235.93	\$241.31	\$238.62	-0.45%
7/23/2015	\$250.09	\$256.04	\$253.06	5.87%
7/24/2015	\$248.66	\$253.77	\$251.21	-0.73%
7/27/2015	\$253.81	\$259.12	\$256.47	2.07%
7/28/2015	\$254.83	\$260.28	\$257.55	0.42%
7/29/2015	\$252.07	\$257.61	\$254.84	-1.06%
7/30/2015	\$250.87	\$256.23	\$253.55	-0.51%
7/31/2015	\$254.69	\$259.64	\$257.16	1.42%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
8/3/2015	\$253.92	\$259.32	\$256.62	-0.21%
8/4/2015	\$257.05	\$261.49	\$259.27	1.03%
8/5/2015	\$259.24	\$264.12	\$261.68	0.92%
8/6/2015	\$246.23	\$251.47	\$248.85	-5.03%
8/7/2015	\$244.79	\$249.44	\$247.12	-0.70%
8/10/2015	\$245.05	\$250.08	\$247.56	0.18%
8/11/2015	\$242.64	\$247.83	\$245.23	-0.95%
8/12/2015	\$241.21	\$246.59	\$243.90	-0.55%
8/13/2015	\$243.38	\$248.08	\$245.73	0.75%
8/14/2015	\$243.81	\$248.78	\$246.29	0.23%
8/17/2015	\$246.17	\$251.25	\$248.71	0.98%
8/18/2015	\$246.99	\$252.42	\$249.71	0.40%
8/19/2015	\$242.29	\$247.59	\$244.94	-1.93%
8/20/2015	\$225.75	\$231.76	\$228.76	-6.84%
8/21/2015	\$219.24	\$224.92	\$222.08	-2.96%
8/24/2015	\$217.21	\$223.67	\$220.44	-0.74%
8/25/2015	\$217.28	\$223.11	\$220.20	-0.11%
8/26/2015	\$223.94	\$229.82	\$226.88	2.99%
8/27/2015	\$231.36	\$236.80	\$234.08	3.13%
8/28/2015	\$232.45	\$237.89	\$235.17	0.46%
8/31/2015	\$227.80	\$232.97	\$230.38	-2.05%
9/1/2015	\$220.92	\$226.36	\$223.64	-2.97%
9/2/2015	\$228.18	\$233.52	\$230.85	3.17%
9/3/2015	\$225.17	\$230.94	\$228.06	-1.22%
9/4/2015	\$225.95	\$231.44	\$228.69	0.28%
9/8/2015	\$230.45	\$235.65	\$233.05	1.88%
9/9/2015	\$225.23	\$230.50	\$227.86	-2.25%
9/10/2015	\$225.63	\$230.85	\$228.24	0.17%
9/11/2015	\$222.43	\$227.49	\$224.96	-1.45%
9/14/2015	\$219.41	\$225.04	\$222.22	-1.22%
9/15/2015	\$224.80	\$230.58	\$227.69	2.43%
9/16/2015	\$230.12	\$235.72	\$232.92	2.27%
9/17/2015	\$237.28	\$243.91	\$240.59	3.24%
9/18/2015	\$238.40	\$244.10	\$241.25	0.27%
9/21/2015	\$225.42	\$231.67	\$228.54	-5.41%
9/22/2015	\$213.19	\$219.15	\$216.17	-5.57%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
9/23/2015	\$213.87	\$219.84	\$216.86	0.32%
9/24/2015	\$205.36	\$212.11	\$208.74	-3.82%
9/25/2015	\$195.91	\$202.55	\$199.23	-4.66%
9/28/2015	\$162.21	\$170.22	\$166.21	-18.12%
9/29/2015	\$154.51	\$161.81	\$158.16	-4.96%
9/30/2015	\$174.75	\$181.54	\$178.15	11.90%
10/1/2015	\$175.65	\$182.07	\$178.86	0.40%
10/2/2015	\$178.26	\$185.18	\$181.72	1.59%
10/5/2015	\$160.37	\$166.93	\$163.65	-10.47%
10/6/2015	\$162.44	\$168.72	\$165.58	1.17%
10/7/2015	\$165.81	\$172.46	\$169.14	2.13%
10/8/2015	\$167.18	\$173.47	\$170.32	0.70%
10/9/2015	\$172.31	\$178.32	\$175.32	2.89%
10/12/2015	\$170.06	\$176.44	\$173.25	-1.19%
10/13/2015	\$163.52	\$169.98	\$166.75	-3.82%
10/14/2015	\$173.54	\$179.79	\$176.66	5.78%
10/15/2015	\$164.95	\$171.24	\$168.09	-4.97%
10/16/2015	\$173.80	\$180.88	\$177.34	5.36%
10/19/2015	\$160.27	\$166.70	\$163.48	-8.14%
10/20/2015	\$143.39	\$149.30	\$146.34	-11.07%
10/21/2015	\$114.42	\$121.49	\$117.96	-21.56%
10/22/2015	\$106.92	\$113.34	\$110.13	-6.87%
10/23/2015	\$112.75	\$119.06	\$115.90	5.11%
10/26/2015	\$106.96	\$112.70	\$109.83	-5.39%
10/27/2015	\$106.67	\$112.07	\$109.37	-0.42%
10/28/2015	\$113.67	\$119.45	\$116.56	6.37%
10/29/2015	\$108.11	\$114.26	\$111.19	-4.72%
10/30/2015	\$90.82	\$96.56	\$93.69	-17.13%
11/2/2015	\$97.71	\$102.36	\$100.03	6.55%
11/3/2015	\$94.97	\$100.26	\$97.62	-2.44%
11/4/2015	\$89.66	\$94.29	\$91.98	-5.95%
11/5/2015	\$75.91	\$80.96	\$78.44	-15.93%
11/6/2015	\$79.44	\$84.47	\$81.96	4.39%
11/9/2015	\$82.31	\$87.25	\$84.78	3.38%
11/10/2015	\$80.95	\$85.81	\$83.38	-1.66%
11/11/2015	\$77.05	\$81.52	\$79.28	-5.04%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
11/12/2015	\$72.10	\$76.70	\$74.40	-6.36%
11/13/2015	\$72.65	\$77.41	\$75.03	0.85%
11/16/2015	\$70.90	\$75.83	\$73.36	-2.25%
11/17/2015	\$68.28	\$73.05	\$70.67	-3.74%
11/18/2015	\$70.34	\$75.19	\$72.76	2.92%
11/19/2015	\$80.66	\$85.52	\$83.09	13.28%
11/20/2015	\$87.46	\$92.40	\$89.93	7.91%
11/23/2015	\$85.49	\$90.23	\$87.86	-2.33%
11/24/2015	\$85.01	\$89.55	\$87.28	-0.66%
11/25/2015	\$84.64	\$89.07	\$86.85	-0.49%
11/27/2015	\$84.62	\$89.09	\$86.86	0.00%
11/30/2015	\$86.98	\$91.97	\$89.48	2.97%
12/1/2015	\$95.76	\$100.36	\$98.06	9.17%
12/2/2015	\$93.98	\$98.45	\$96.21	-1.91%
12/3/2015	\$90.85	\$95.37	\$93.11	-3.28%
12/4/2015	\$92.72	\$97.24	\$94.98	1.99%
12/7/2015	\$89.79	\$94.09	\$91.94	-3.25%
12/8/2015	\$91.32	\$95.83	\$93.57	1.76%
12/9/2015	\$91.28	\$95.76	\$93.52	-0.06%
12/10/2015	\$93.80	\$98.13	\$95.96	2.58%
12/11/2015	\$91.15	\$95.71	\$93.43	-2.67%
12/14/2015	\$90.94	\$95.79	\$93.37	-0.07%
12/15/2015	\$106.11	\$111.18	\$108.64	15.15%
12/16/2015	\$115.18	\$120.14	\$117.66	7.97%
12/17/2015	\$109.42	\$114.04	\$111.73	-5.17%
12/18/2015	\$105.81	\$110.12	\$107.97	-3.43%
12/21/2015	\$105.80	\$110.34	\$108.07	0.10%
12/22/2015	\$109.79	\$114.07	\$111.93	3.51%
12/23/2015	\$112.31	\$116.57	\$114.44	2.22%
12/24/2015	\$111.97	\$116.61	\$114.29	-0.13%
12/28/2015	\$99.84	\$104.61	\$102.23	-11.16%
12/29/2015	\$98.49	\$103.14	\$100.81	-1.39%
12/30/2015	\$99.65	\$104.61	\$102.13	1.30%
12/31/2015	\$99.38	\$104.18	\$101.78	-0.34%
1/4/2016	\$95.55	\$100.43	\$97.99	-3.80%
1/5/2016	\$97.77	\$102.49	\$100.13	2.16%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
1/6/2016	\$99.75	\$104.10	\$101.93	1.78%
1/7/2016	\$95.24	\$99.50	\$97.37	-4.58%
1/8/2016	\$88.92	\$93.27	\$91.09	-6.66%
1/11/2016	\$83.04	\$87.46	\$85.25	-6.63%
1/12/2016	\$84.89	\$89.46	\$87.18	2.24%
1/13/2016	\$83.23	\$87.60	\$85.41	-2.05%
1/14/2016	\$87.44	\$91.41	\$89.42	4.59%
1/15/2016	\$85.44	\$90.49	\$87.97	-1.64%
1/19/2016	\$85.95	\$90.11	\$88.03	0.07%
1/20/2016	\$87.28	\$91.66	\$89.47	1.62%
1/21/2016	\$88.04	\$92.10	\$90.07	0.67%
1/22/2016	\$86.44	\$90.41	\$88.43	-1.84%
1/25/2016	\$90.82	\$94.82	\$92.82	4.85%
1/26/2016	\$95.93	\$100.13	\$98.03	5.46%
1/27/2016	\$92.19	\$96.21	\$94.20	-3.98%
1/28/2016	\$83.94	\$88.16	\$86.05	-9.05%
1/29/2016	\$87.21	\$91.10	\$89.15	3.54%
2/1/2016	\$93.02	\$97.37	\$95.19	6.55%
2/2/2016	\$89.64	\$93.52	\$91.58	-3.87%
2/3/2016	\$91.23	\$95.15	\$93.19	1.75%
2/4/2016	\$94.87	\$98.58	\$96.73	3.72%
2/5/2016	\$94.27	\$98.12	\$96.19	-0.55%
2/8/2016	\$87.56	\$91.37	\$89.46	-7.25%
2/9/2016	\$84.73	\$88.92	\$86.83	-2.99%
2/10/2016	\$83.87	\$87.74	\$85.80	-1.18%
2/11/2016	\$80.82	\$84.79	\$82.81	-3.56%
2/12/2016	\$86.02	\$89.70	\$87.86	5.93%
2/16/2016	\$88.22	\$92.27	\$90.25	2.68%
2/17/2016	\$92.52	\$96.40	\$94.46	4.57%
2/18/2016	\$91.73	\$95.42	\$93.58	-0.94%
2/19/2016	\$83.20	\$87.01	\$85.11	-9.49%
2/22/2016	\$73.54	\$77.75	\$75.65	-11.78%
2/23/2016	\$77.60	\$81.47	\$79.53	5.01%
2/24/2016	\$81.52	\$85.70	\$83.61	5.00%
2/25/2016	\$81.77	\$86.03	\$83.90	0.35%
2/26/2016	\$78.64	\$82.95	\$80.80	-3.77%

Exhibit-9

Valeant Synthetic Stock Prices Derived from Valeant Options

3 January 2012 through 15 March 2016

Date	Synthetic Bid Price	Synthetic Ask Price	Synthetic Price	Synthetic Stock Logarithmic Return
2/29/2016	\$62.91	\$68.30	\$65.60	-20.83%
3/1/2016	\$63.14	\$67.40	\$65.27	-0.50%
3/2/2016	\$65.42	\$68.60	\$67.01	2.63%
3/3/2016	\$63.51	\$66.46	\$64.99	-3.07%
3/4/2016	\$59.47	\$62.77	\$61.12	-6.13%
3/7/2016	\$64.14	\$66.72	\$65.43	6.81%
3/8/2016	\$61.93	\$64.46	\$63.19	-3.48%
3/9/2016	\$65.06	\$67.90	\$66.48	5.07%
3/10/2016	\$64.58	\$67.22	\$65.90	-0.87%
3/11/2016	\$67.63	\$70.30	\$68.96	4.54%
3/14/2016	\$67.41	\$70.17	\$68.79	-0.25%
3/15/2016	\$31.71	\$34.59	\$33.15	-73.01%

Sources: Crowninshield Financial Research Computation using data from Federal Reserve Economic Data, iVolatility, and Bloomberg.

Exhibit-10

Synthetic Stock from Valeant Options Regression Results

Estimation Period: 252 Trading Days Prior to Event Date

Event Date	Coefficients			Standard Error			t-statistic			Regression Statistics		
	Intercept	Market Index	Sector Index	Intercept	Market Index	Sector Index	Intercept	Market Index	Sector Index	R Squared	Adjusted R Squared	Standard Error
4 January 2013	0.000	0.633	0.399	0.001	0.147	0.110	0.25	4.30	3.63	0.359	0.338	1.48%
28 February 2013	0.001	0.578	0.404	0.001	0.150	0.123	0.74	3.85	3.29	0.358	0.337	1.43%
2 May 2013	0.001	0.663	0.345	0.001	0.157	0.118	0.69	4.23	2.91	0.334	0.312	1.47%
28 May 2013	0.001	0.622	0.375	0.001	0.177	0.127	1.09	3.50	2.95	0.268	0.245	1.66%
7 August 2013	0.002	0.540	0.294	0.001	0.179	0.117	1.55	3.01	2.52	0.234	0.209	1.58%
31 October 2013	0.001	0.618	0.231	0.001	0.163	0.101	1.55	3.80	2.29	0.306	0.280	1.38%
7 January 2014	0.001	0.676	0.259	0.001	0.184	0.106	1.25	3.68	2.43	0.394	0.374	1.41%
27 February 2014	0.001	0.629	0.350	0.001	0.173	0.096	1.29	3.64	3.66	0.418	0.396	1.44%
22 April 2014	0.000	0.662	0.471	0.001	0.182	0.091	0.22	3.65	5.16	0.484	0.465	1.51%
8 May 2014	0.000	0.597	0.513	0.001	0.184	0.095	0.08	3.24	5.42	0.485	0.466	1.50%
31 July 2014	-0.001	0.634	0.536	0.001	0.176	0.087	-0.87	3.60	6.16	0.522	0.504	1.35%
24 September 2014	-0.001	0.507	0.594	0.001	0.179	0.085	-1.59	2.84	7.03	0.546	0.529	1.35%
20 October 2014	-0.001	0.469	0.593	0.001	0.175	0.084	-1.57	2.68	7.02	0.543	0.524	1.38%
8 January 2015	-0.001	0.428	0.552	0.001	0.152	0.074	-0.74	2.81	7.43	0.497	0.478	1.39%
23 February 2015	-0.001	0.379	0.509	0.001	0.156	0.080	-0.59	2.42	6.37	0.554	0.536	1.40%
29 April 2015	0.000	0.247	0.465	0.001	0.152	0.083	0.30	1.63	5.60	0.521	0.503	1.34%
23 July 2015	0.001	0.360	0.471	0.001	0.140	0.081	1.40	2.57	5.82	0.591	0.576	1.23%
19 October 2015	0.000	0.178	0.801	0.001	0.198	0.123	-0.00	0.90	6.53	0.449	0.431	1.97%
26 October 2015	-0.001	0.145	0.869	0.002	0.251	0.155	-0.88	0.58	5.62	0.354	0.333	2.51%
30 October 2015	-0.001	0.275	0.804	0.002	0.253	0.155	-0.89	1.09	5.17	0.414	0.392	2.57%
10 November 2015	-0.002	0.218	0.874	0.002	0.281	0.174	-0.93	0.78	5.04	0.381	0.356	2.81%
16 December 2015	-0.001	0.357	0.857	0.002	0.328	0.204	-0.46	1.09	4.21	0.349	0.320	3.21%
23 February 2016	-0.003	0.003	1.246	0.002	0.375	0.256	-1.19	0.01	4.86	0.339	0.309	3.59%
29 February 2016	-0.003	0.006	1.250	0.002	0.376	0.257	-1.19	0.02	4.85	0.368	0.339	3.60%
15 March 2016	-0.003	0.033	1.238	0.002	0.377	0.259	-1.11	0.09	4.79	0.688	0.672	3.66%

Exhibit-11a
Valeant Options Event Study Results
Acquisition Announcement Events

Date	Valeant Synthetic Closing Price	Valeant Synthetic Prior Day Closing Price	Valeant Synthetic Logarithmic Return	Market Index Logarithmic Return	Peer Index Logarithmic Return	Valeant Synthetic Explained Return	Valeant Synthetic Residual Return	<i>t</i>- statistic
28 May 2013	\$91.73	\$83.96	8.85%	0.63%	0.82%	0.81%	8.03%	4.84
22 April 2014	\$134.46	\$124.98	7.32%	0.55%	4.11%	2.32%	4.99%	3.31
23 February 2015	\$198.54	\$172.92	13.82%	-0.06%	0.17%	0.01%	13.81%	9.86

Notes:

The threshold for statistical significance at the 95% confidence level using a two-tailed test is a *t*-statistic of greater (less) than positive (negative) 1.96.

Exhibit-11b
Valeant Options Event Study Results
Philidor Disclosure Events

Date	Valeant Synthetic Closing Price	Valeant Synthetic Prior Day Closing Price	Valeant Synthetic Logarithmic Return	Market Index Logarithmic Return	Peer Index Logarithmic Return	Valeant Synthetic Explained Return	Valeant Synthetic Residual Return	t- statistic
19 October 2015	\$163.48	\$177.34	-8.14%	-0.07%	0.27%	0.20%	-8.34%	-4.22
26 October 2015	\$109.83	\$115.90	-5.39%	-0.28%	0.81%	0.52%	-5.90%	-2.35
30 October 2015	\$93.69	\$111.19	-17.13%	-0.40%	-1.00%	-1.06%	-16.07%	-6.26
10 November 2015	\$83.38	\$84.78	-1.66%	0.13%	0.73%	0.50%	-2.16%	-0.77
23 February 2016	\$79.53	\$75.65	5.01%	-1.19%	-1.30%	-1.90%	6.91%	1.93
29 February 2016	\$65.60	\$80.80	-20.83%	-0.59%	-1.83%	-2.57%	-18.27%	-5.08
15 March 2016	\$33.15	\$68.79	-73.01%	-0.45%	-1.76%	-2.45%	-70.56%	-19.27

Notes:

The threshold for statistical significance at the 95% confidence level using a two-tailed test is a *t*-statistic of greater (less) than positive (negative) 1.96.